

Evaluation of Groundwater Monitoring Results OMC Plant 2 (Operable Unit 4) WA No. 237-RARA-0528/Contract No. EP-S5-06-01

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Introduction

This technical memorandum summarizes the groundwater quality conditions at the Outboard Marine Corporation (OMC) Plant 2 Superfund Site (site) in Waukegan, Illinois (Figure 1). The groundwater data were evaluated to assess progress from the implemented in situ treatment activities toward meeting the overall remedial action objectives for the site. As specified in the U.S. Environmental Protection Agency's (EPA's) Record of Decision (EPA 2009), the overall remedial action objective for the groundwater remedy is to reduce the concentrations of the total volatile organic compound (VOC) chemicals of concern (specifically trichloroethene [TCE], cis-1,2-dichloroethene [cis-1,2-DCE], and vinyl chloride) to levels that would allow the groundwater to be used for residential purposes without restrictions.

The purpose of this technical memorandum is to evaluate whether the recent 2018 treatment injections impacted subsurface conditions and if the in situ treatments have reduced the dissolved levels of total VOCs (TCE, cis-1,2-DCE, and vinyl chloride) to less than 1,000 micrograms per liter ($\mu\text{g}/\text{L}$), such that monitored natural attenuation can be implemented until the cleanup levels are achieved.

Site Description and Remedial Activities

The following subsections summarize the hydrogeology and previous groundwater remedial activities. A detailed description of the history of OMC Plant 2, including geology and hydrogeology, historical manufacturing operations, and previous site investigations, can be found in the *Remedial Investigation Report* (CH2M 2006) and the Record of Decision (EPA 2009).

Site Hydrogeology

Groundwater is encountered between 2 to 7 feet below ground surface (bgs) and appears to be heavily influenced by precipitation, snow melt, and surface water elevations in Lake Michigan and Waukegan Harbor (CH2M 2006 and 2017a). The sand aquifer has been divided into a shallow (0 to 10 feet bgs) and deep (greater than 10 feet bgs) monitoring zone. Groundwater flow in both zones is generally west to east across the northern portion of the site (toward Lake Michigan), and in the southern portion of the site groundwater flows toward the south (toward Waukegan Harbor). The overall average groundwater gradient observed at the site was 0.002. Based on an estimated porosity of 30 percent and the average hydraulic conductivity of 2.2×10^{-2} centimeters per second (cm/sec), the calculated groundwater velocity ranges from 70 to 150 feet per year in the shallow aquifer and 6 to 30 feet per year in the deep aquifer. The underlying clay till is relatively impermeable and is expected to act as a barrier to vertical contaminant migration from the unconfined sand aquifer (CH2M 2006).

Past and Present Remedial Activities

Site characterization activities completed in 2005 (*Remedial Investigation Report*; CH2M 2006) identified five groundwater source areas. These source areas were defined as portions of the aquifer that have particularly high dissolved-phase TCE concentrations, and may have residual dense nonaqueous phase liquid (DNAPL) or high concentrations of adsorbed TCE that can continue to create and sustain the dissolved-phase plumes. Remedial activities implemented to address the source areas in the shallow and deep portions of the aquifer are shown in Figures 2 and 3, respectively, and are described as follows:

- 2007—An enhanced in situ bioremediation (EISB) treatment pilot test was conducted with sodium lactate and emulsified oil substrate (EOS). Approximately 5,400 gallons of sodium lactate were injected in the shallow and deep aquifer in Source Area 4, and approximately 3,800 gallons of EOS were injected in the shallow and deep aquifer in Source Area 5. Performance monitoring conducted pre- and post-injections indicated that reductive dechlorination was occurring and that EISB treatment could effectively reduce the VOC concentrations in groundwater (CH2M 2008).
- 2011 to present—Installation and operation of an air sparge system (CH2M 2011). The air sparge system was installed along the southern property boundary to minimize the potential for offsite plume migration and is currently being operated by Illinois EPA. Based on the analytical results from monitoring well nest MW-610 and well nest MW-514 downgradient of the air sparge curtain, no additional treatment is needed in Area 4.
- 2011—In situ soil mixing using zero-valent iron (ZVI) was conducted over an approximately 11,000-square-foot area to treat TCE DNAPL. Performance monitoring conducted 2 and 6 months after the soil mixing indicated an overall reduction of TCE concentrations in soil and groundwater (CH2M 2012).
- 2012—In situ chemical oxidation (ISCO) pilot-testing was conducted using potassium permanganate. A total of 18,350 pounds of potassium permanganate was injected into Source Area 1 using direct-push technology methods. The results of the pilot test found ISCO to be an effective remedy that could be used in the other source areas (CH2M 2013).
- 2014—ISCO injection using sodium permanganate into four source areas and performance monitoring. Approximately 378,000 pounds of 40 percent by weight sodium permanganate was injected into the shallow and/or deep portions of the treatment areas. The ISCO application appeared to have been effective. However, data from groundwater samples collected in 2016 indicate that degradation of total VOCs in select areas had stalled (CH2M 2014 and 2017a).
- 2015—Removal of the former triax building concrete slab and treatment of underlying TCE-impacted soil to a maximum depth of 4 feet. An estimated 460 cubic yards of TCE-impacted soils were treated in situ by mixing the soil with a solution of persulfate activated with sodium hydroxide. Treatment was successful in reducing TCE concentrations for offsite disposal (CH2M 2015a).
- 2018 (April and May)—EISB injections with EOS and in situ chemical reduction (ISCR) injections using carbon substrate (Anaerobic BioChem [ABC]) mixed with ZVI were conducted using direct-push technology. The targeted treatment areas included portions of the shallow and deep aquifer that contained TCE concentrations at or above 1,000 µg/L, or cis-1,2-DCE and/or vinyl chloride concentrations at or above 10,000 µg/L (CH2M 2018a). Approximately 132,300 gallons of EOS, 17,220 pounds of ABC, and 11,480 pounds of ZVI were injected.
- 2014 through 2018—Groundwater samples were collected during semiannual or quarterly sampling events to monitor the implemented remedial activities. Technical memorandums detailing these past sampling activities have been previously submitted to EPA (CH2M 2014, 2015b, 2016a, 2016b, 2017a, 2017b, and 2018b) except for the most recent August 2018 groundwater sampling event, which is provided as Attachment 1. During these events, groundwater samples were collected from performance monitoring and sitewide monitoring well locations, as presented in Figure 4.

Methodology

Data Evaluated

The groundwater data collected from April 2014 through August 2018 were evaluated to assess if the 2018 EISB and ISCR injections, as well as prior source area treatments, have been effective in reducing the concentrations of the total VOCs (TCE, cis-1,2-DCE, and vinyl chloride). The overall goal for groundwater is to reduce the total VOC concentration to less than 1,000 µg/L, after which a sitewide monitored natural attenuation approach can be implemented until the final cleanup levels are achieved. The April 2014 cut-off for the historical data was selected because most of the performance wells had been installed, and the data set is consistent and relatively complete over the 2014 and 2018 period. In addition, sitewide wells that are not also performance wells (Figure 4) were not included in the evaluation because total VOC concentrations at these wells are generally less than 1,000 µg/L.

Based on the remedial goals for groundwater, the evaluation focused on concentration trends and the mass of TCE and its degradation products, cis-1,2-DCE and vinyl chloride, over time. However, changes in field parameters (such as dissolved oxygen [DO], oxidation-reduction potential [ORP], pH, specific conductance, temperature, and turbidity), total organic carbon (TOC) and chloride were also examined to evaluate whether the injections are affecting the geochemistry of the aquifer and that conditions are conducive for continued degradation. For example, EISB and ISCR injections are expected to create reducing environments in the subsurface, resulting in decreasing measurements of ORP and DO. Increasing ferrous iron measurements are expected in areas of ISCR injections along with increasing TOC and chloride results.

The field parameter readings and analytical data have been tabulated and are provided in Attachment 2.

Trend Analysis and Mass Estimates

The Mann-Kendall test is a nonparametric procedure used to identify whether there is a statistically significant trend over a period of monitoring (Gilbert 1987). The Mann-Kendall test was conducted using the historical data set from April 2014 through August 2018 to make a statistical inference concerning concentration trends of total VOC data collected from the performance monitoring wells (Figure 4). Attachment 3 contains a summary of the application of the Mann-Kendall statistical method.

Mass estimates were completed to demonstrate the changes over time of total VOCs in groundwater. The total integrated (i.e., summed) mass of total VOCs was estimated from 2014 and 2018 for the shallow and the deep monitoring zones. Attachment 3 contains a summary of the method used to calculate total mass estimates, as well as mass estimates for individual VOC compounds.

Data Results

Volatile Organic Compounds

Distribution

TCE, cis-1,2-DCE, and vinyl chloride were detected in shallow and deep groundwater in August 2018 (2 months post-injection), with detections occurring more frequently and at higher concentrations in the deep aquifer. The highest concentrations occur at Source Areas 1 & 2, 3, and 5. Of the three VOCs, cis-1,2-DCE and vinyl chloride, both degradation products of TCE, are detected more frequently and at higher concentrations than TCE (parent product) (see Table 3 in Attachment 1 for the August 2018 data).

Figure 5 shows the total VOC (TCE, cis-1,2-DCE, and vinyl chloride) concentrations in the shallow monitoring wells in April 2014 and August 2018. The horizontal extent of monitoring wells with total VOC concentrations in the shallow aquifer groundwater greater than 1,000 µg/L has changed between April 2014 and August 2018. The two shallow wells (MW-604S and MW-605S) with total VOC concentrations above 1,000 µg/L in April 2014 are now less than 1,000 µg/L. In August 2018, only 2 of

the 31 shallow monitoring wells (MW-620S and MW-626S) had detected total VOC concentrations greater than 1,000 µg/L and are associated with Source Area 3.

Figure 6 shows the total VOC concentrations in the deep monitoring wells in April 2014 and August 2018. The horizontal extent of monitoring wells with total VOC concentrations in the deep aquifer groundwater greater than 1,000 µg/L was reduced between April 2014 and August 2018. The extent of monitoring wells with total VOC concentrations greater than 10,000 and 100,000 µg/L has also decreased over the period (Figure 6). In August 2018, total VOC concentrations greater than 1,000 µg/L were present in several deep groundwater monitoring wells associated with Source Areas 1 & 2 and 5.

Trend Analyses

TCE, cis-1,2-DCE, and vinyl chloride concentration trends over time were used to assess the effectiveness of source area treatment. Attachment 4 contains graphs depicting the concentration trends for the shallow and deep monitoring wells.

Mann-Kendall statistical trend analysis was performed on the total VOC data for performance monitoring wells with a sufficient number of results (30). Table 1 summarizes the data for each well and the results of the Mann-Kendall tests on whether there is a statistical trend in the total VOC concentrations. The following are general observations:

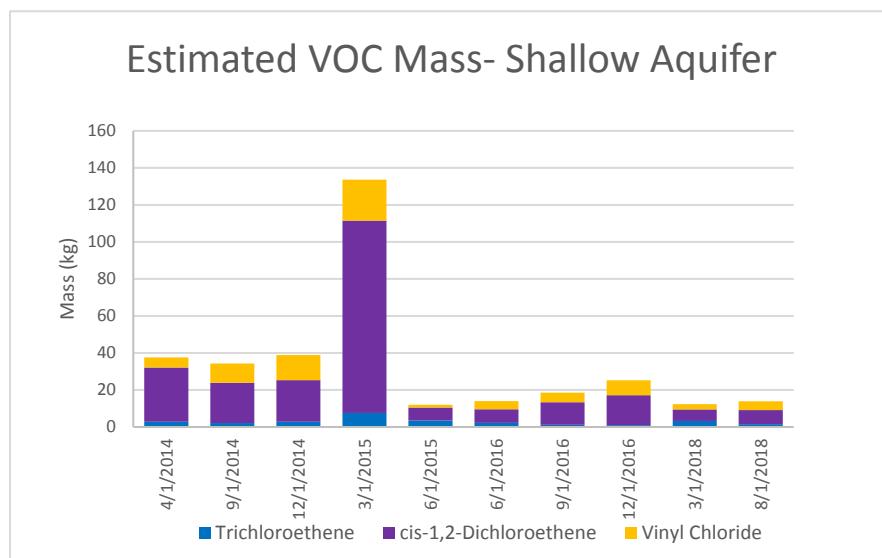
- Either decreasing concentrations or no statistical trends were observed at 13 shallow and 14 deep wells (90 percent of the monitoring wells evaluated).
- Increasing concentrations of total VOCs were observed at one shallow (MW-615S) and one deep (MW-600D) monitoring well (10 percent of the monitoring wells evaluated).

A more detailed data analysis (review of data over time and use of trend graphs) of the total VOC concentrations were performed at the two wells with statistically significant increasing trends.

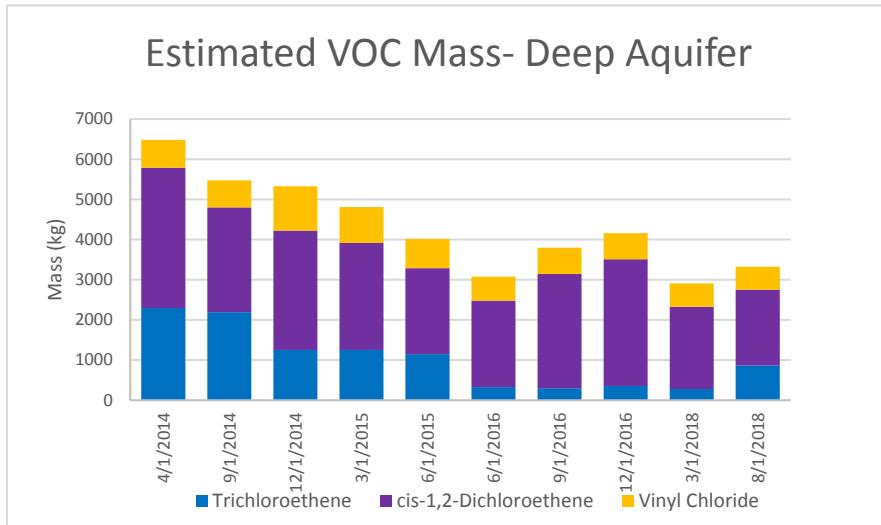
Concentrations of total VOCs detected at MW-615S since April 2014 are stable, ranging from 3.4 to 15.3 µg/L, which are two orders of magnitude below the 1,000-µg/L goal. Further analysis of MW-600D (located within Source Area 5 treated in 2018) confirms that this well has increasing concentrations of total VOCs, and those concentrations are greater than 1,000 µg/L. The increasing trend is attributed to increasing concentrations of TCE daughter product, vinyl chloride.

Mass Estimates

The mass estimates for the shallow aquifer between 2014 and 2018 are summarized in Table 2 and shown on the following graph:



The mass estimates for the deep aquifer between 2014 and 2018 are summarized in Table 3 and shown on the following graph:



The following observations of the mass estimate trends demonstrate the effectiveness of remedial activities in reducing VOC concentrations in groundwater (Tables 2 and 3):

- The total estimated mass has decreased in the shallow and deep portions of the aquifer between 2014 (ISCO injections) and 2018 (EISB and ISCR injections).
- The total estimated mass in the shallow zone makes up less than 1 percent of the total estimated mass of the groundwater plume.
- The total mass of the parent product, TCE, has decreased approximately 30 percent in the deep aquifer between 2014 and 2018.
- TCE daughter products cis-1,2-DCE and vinyl chloride make up over 70 percent of the mass estimated in both the shallow and deep portions of the aquifer.

Geochemical Environment

Based upon the August 2018 post-injection sampling data collected at performance monitoring wells, there are several lines of evidence that suggest the 2018 injections were continuing to influence groundwater conditions within the treatment areas. Attachment 2 contains the field parameter readings. The observations based on the geochemical data are as follows:

- ORP measurements were collected to determine the degree to which the injections caused reducing conditions in groundwater (Attachment 5). ORP concentrations were generally lower in August 2018 when compared to March 2018, with ORP measurements exhibiting reducing conditions, with 97 percent of performance wells in the injection areas being negative in August 2018.
- DO measurements were collected to determine the degree to which the injections caused reducing conditions in groundwater (Attachment 5). In general, DO concentrations in August 2018 were anaerobic with concentrations less than 0.5 milligram per liter (mg/L) (EPA 1998). Measured DO concentrations following the 2018 injection increased in some performance monitoring wells but decreased in others.
- pH measurements were collected to assess whether pH conditions remained favorable for anaerobic biodegradation post-injection. pH measurements on average are generally lower than compared to

March 2018. The average pH recorded in 2018 was 7.3 standard units in August 2018, while in March 2018, the pH was closer to 7.5 standard units, creating a slightly more favorable reductive pathway.

- Ferrous iron measurements were collected to determine if the iron from the ISCR injections caused reducing conditions in groundwater. Ferrous iron measurements from two monitoring wells nests ranged from 0.5 to 2.4 mg/L in August 2018.
- TOC was analyzed to confirm that the recent injections supplied abundant carbon in groundwater to drive dichlorination of VOCs. TOC concentrations in August 2018 were elevated compared to the pre-injection (March 2018 data), with maximum detected concentrations of 1,100 mg/L in August 2018 compared to 190 mg/L in March 2018. Three shallow and 14 deep performance monitoring wells (50 percent) had detected TOC concentrations greater than 20 mg/L in August 2018, which is a sufficient concentration to serve as a carbon energy source during degradation (EPA 1998).
- Chloride was analyzed to evaluate if increased concentrations were present from recent injections, providing evidence of destruction of VOCs. Elevated chloride concentrations were observed in 9 shallow and 5 deep performance monitoring wells (41 percent) within treated source areas that were at least two times greater than monitoring wells with background total chloride concentrations.

Conclusions

Groundwater conditions in August 2018 generally exhibited a reducing geochemical environment, as evidenced by negative ORP readings, low DO concentrations, and increase of ferrous iron concentrations. Additionally, the elevated TOC concentrations observed in August 2018 suggest that the substrate is continuing to supply abundant carbon to groundwater in Source Areas 1 & 2, 3, and 5 that were treated with EISB. An insufficient number of ongoing performance sampling rounds are available post-injection to make inferences regarding the impact of the 2018 injections on the overall VOC concentrations; however, the groundwater treatments implemented at the site between 2014 and 2018 have resulted in an overall reduction of total VOC concentrations at the site as evidenced by the following:

- The overall distribution of total VOCs is highest within the deep aquifer. The extent of monitoring wells in the deep aquifer with total VOC concentrations greater than the 1,000- $\mu\text{g}/\text{L}$ goal was reduced between April 2014 and August 2018. Reductions in the horizontal extent of total VOC concentrations greater than 10,000 and 100,000 $\mu\text{g}/\text{L}$ was also observed during the same time period.
- Approximately 90 percent of shallow and deep monitoring wells evaluated exhibited a decreasing or no statistical trends for total VOCs.
- In both the shallow and deep aquifer, cis-1,2-DCE and vinyl chloride, both degradation products of TCE, are detected at the site more frequently and at higher concentrations than TCE (parent product)
- The total estimated VOC mass has decreased in both the shallow and deep portions of the aquifer, with the total estimated VOC mass in the shallow aquifer contributing less than 1 percent of the total estimated mass of the groundwater plume.

The August 2018 total VOC distribution is generally limited to the deep aquifer and is consistent with historical observations. The shallow aquifer contributes to less than 1 percent of the estimated total VOC plume in groundwater; however, two shallow wells (MW-620S and MW-626S) had detected total VOC concentrations greater than the 1,000- $\mu\text{g}/\text{L}$ goal. Total VOC concentrations greater than 1,000 $\mu\text{g}/\text{L}$ in the deep aquifer still affect monitoring wells within several source areas (1 & 2, 3, and 5).

Recommendations

With limited post-injection data, CH2M recommends continued quarterly groundwater performance monitoring events, to further evaluate the overall performance of the EISB and ISCR treatment in reducing the total VOC concentrations. Additional rounds of field and analytical parameters are needed to assess whether the reducing geochemical environment is maintained following the August 2018 post-injection event. Based on estimated total VOC mass in the shallow aquifer, discontinuing the groundwater monitoring of select shallow-zone performance and sitewide wells can be considered due to meeting the 1,000- $\mu\text{g}/\text{L}$ goal in VOC concentrations in treatment areas, except for Source Area 3. Continuing quarterly performance monitoring events is recommended in Source Area 3 (MW-620S and MW-626S) to document the performance of the April and May 2018 injections.

Works Cited

- CH2M HILL, Inc. (CH2M). 2006. *Remedial Investigation Report, OMC Plant 2, Waukegan, Illinois*. April.
- CH2M HILL, Inc. (CH2M). 2008. *Enhanced In Situ Bioremediation Pilot Study Report, OMC Plant 2 Site (OU4), Remedial Investigation/Feasibility Study*. March.
- CH2M HILL, Inc. (CH2M). 2011. *Air Sparge Remedy, OMC Plant 2 Site (OU4), Remedial Action Report*. September.
- CH2M HILL, Inc. (CH2M). 2012. *In Situ Soil Mixing Remedy, OMC Plant 2 Site (OU4), Remedial Action Report*. September.
- CH2M HILL, Inc. (CH2M). 2013. *Technical Memorandum, OMC Plant 2 Site (OU4), In Situ Chemical Oxidation Injection Report*. August.
- CH2M HILL, Inc. (CH2M). 2014. *Evaluation of Monitoring Results*. April.
- CH2M HILL, Inc. (CH2M) 2015a. *Triax Building, Soil and Water Treatment Plant Activities, OMC Waukegan Harbor Site (OU1)*. December.
- CH2M HILL, Inc. (CH2M). 2015b. *Evaluation of 2014 and 2015 Monitoring Results*. December.
- CH2M HILL, Inc. (CH2M). 2016a. *June 2016 Quarterly Performance Monitoring*. August.
- CH2M HILL, Inc. (CH2M). 2016b. *September 2016 Quarterly Performance Monitoring*. December.
- CH2M HILL, Inc. (CH2M). 2017a. *2016 Evaluation of Monitoring Results OMC Plant 2 Site (OU4), Waukegan, IL*. March.
- CH2M HILL, Inc. (CH2M). 2017b. *December 2016 Quarterly Performance Monitoring*. June.
- CH2M HILL, Inc. (CH2M). 2017c. *Supplemental In Situ Groundwater Treatment. OMC Plant 2 Site (OU4), Waukegan, IL*. June.
- CH2M HILL, Inc. (CH2M). 2017d. *Work Plan: OMC Plant 2 Site (OU4), Waukegan, IL*. August.
- CH2M HILL, Inc. (CH2M). 2018a. *Remedial Action Completion Report, OMC Plant 2 Site (OU4), Supplemental Injection Activates, Waukegan, Illinois*. September.
- CH2M HILL, Inc. (CH2M). 2018b. *March 2018 Pre-Injection Groundwater Monitoring OMC Plant 2 Site (OU4), Waukegan, IL*. July.
- CH2M HILL, Inc. (CH2M). 2018c. *August 2018 Post-Injection Groundwater Monitoring OMC Plant 2 Site (OU4), Waukegan, IL*. December.
- Gilbert, R.O. 1987. *Statistical Methods for Environmental Pollution Monitoring*. Wiley, New York.

EVALUATION OF MONITORING RESULTS
OMC PLANT 2 (OPERABLE UNIT 4)

U.S. Environmental Protection Agency (EPA). 1998. *Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water* (Table B.3.B). September. U.S. Environmental Protection Agency (EPA). 2007. *Record of Decision, Outboard Marine Corporation Superfund Site, Waukegan. Lake County, Illinois.* August

U.S. Environmental Protection Agency (EPA). 2009. *Record of Decision, Outboard Marine Corporation Superfund Site, Waukegan. Lake County, Illinois.*

Tables

Table 1. Non-Parametric Trend Analysis for Total CVOCs
 Technical Memorandum 2018 Evaluation of Monitoring Results
 OMC Plant 2 Site (Operable Unit 4), Waukegan, Illinois

Well	Total Samples	Detection Frequency	Average Concentration ($\mu\text{g/L}$)	Last Result ($\mu\text{g/L}$)	Mann-Kendall Result	Mann-Kendall Trend	RAO Criteria—Total CVOC Concentration < 1,000 $\mu\text{g/L}$ (Y/N) ^a	Last Sample Date
		(%)	($\mu\text{g/L}$)	($\mu\text{g/L}$)	Stability			
Areas 1 & 2-S								
MW-604D	10	100	37,758	45,053	94.6% (+)	No Trend	Stable	NO
MW-604S	10	100	2,373	271	93.4% (-)	No Trend	Stable	YES-Met Criteria
MW-605D	11	100	80,493	67,120	94.0% (-)	No Trend	Stable	NO
MW-605S	11	100	1,742	607	100.0% (sig -)	Decreasing	NA	YES-Met Criteria
Area 1 & 2-Hotspot								
MW-607D	8	100	278,938	231,900	80.1% (-)	No Trend	Stable	NO
MW-607S	11	100	30.8	1	100.0% (sig -)	Decreasing	NA	YES-Met Criteria
Area 1 & 2-D1								
MW-601D	11	100	41,425	20,180	97.0% (sig -)	Decreasing	NA	NO
MW-601S	11	100	1.85	2	64.8% (+)	No Trend	Not Stable	YES-Met Criteria
MW-602D	11	100	40,416	25,871	99.9% (sig -)	Decreasing	NA	NO
MW-602S	11	100	1.50	2	56.0% (-)	No Trend	Stable	YES-Met Criteria
MW-603D	10	100	67,467	18,665	99.7% (sig -)	Decreasing	NA	NO
MW-603S	10	100	73.4	6	94.6% (-)	No Trend	Not Stable	YES-Met Criteria
MW-625D	2	100	395	310	NA	IS	NA	YES-Met Criteria
MW-625S	1	100	NA	35	NA	IS	NA	YES-Met Criteria
Area 1 & 2-D2								
MW-606D	9	100	18,680	3,902	100.0% (sig -)	Decreasing	NA	NO
MW-606S	11	100	1,633	181	98.7% (sig -)	Decreasing	NA	YES-Met Criteria
Area 3-S								
MW-626D	2	100	14.4	10	NA	IS	NA	YES-Met Criteria
MW-626S	2	100	2,405	2,690	NA	IS	NA	NO
Area 3-D								
MW-620D	10	100	5,466	33	100.0% (sig -)	Decreasing	NA	YES-Met Criteria
MW-620S	10	100	1,131	2,690	56.9% (-)	No Trend	Stable	NO
Area 5-Hotspot								
MW-613D	11	100	47,254	66,800	67.6% (-)	No Trend	Stable	NO
MW-613S	11	100	22.8	16	61.9% (+)	No Trend	Not Stable	YES-Met Criteria
Area 5-D1								
MW-621D	10	100	32,209	26,005	75.8% (-)	No Trend	Stable	NO
MW-621S	10	100	1.99	0	99.4% (sig -)	Decreasing	NA	YES-Met Criteria
Area 5-D2								
MW-600D	8	100	9911	14,388	99.3% (sig +)	Increasing	NA	NO
MW-600S	8	25	1	4	NA	>50% ND	NA	YES-Met Criteria
MW-612D	10	100	5016	56	94.6% (-)	No Trend	Stable	YES-Met Criteria
MW-612S	10	100	54	0	99.9% (sig -)	Decreasing	NA	YES-Met Criteria
MW-615D	9	100	9984	2,730	96.2% (sig -)	Decreasing	NA	NO
MW-615S	11	100	8	10	98.0% (sig +)	Increasing	NA	YES-Met Criteria
Remaining Performance Monitoring Wells								
MW-614D	10	100	339	677	81.0% (+)	No Trend	Stable	YES-Met Criteria
MW-614S	10	100	1	0	50.0% (+)	No Trend	Not Stable	YES-Met Criteria
MW-619D	10	100	95	43	99.7% (sig -)	Decreasing	NA	YES-Met Criteria
MW-619S	10	100	15	0	99.8% (sig -)	Decreasing	NA	YES-Met Criteria
Sitewide Monitoring Wells								
MW-003D	5	100	NA	0	NA	IS	NA	YES-Met Criteria
MW-003S	5	100	1	0	NA	IS	NA	YES-Met Criteria
MW-011D	10	100	15924	5,900	100.0% (sig -)	Decreasing	NA	NO
MW-011S	10	100	128	8	99.5% (sig -)	Decreasing	NA	YES-Met Criteria
MW-501D	10	100	15	14	63.6% (-)	No Trend	Stable	YES-Met Criteria
MW-501S	10	100	41	16	85.4% (-)	No Trend	Stable	YES-Met Criteria
MW-513D	10	100	1	0	56.9% (+)	No Trend	Not Stable	YES-Met Criteria

Table 1. Non-Parametric Trend Analysis for Total CVOCs
 Technical Memorandum 2018 Evaluation of Monitoring Results
 OMC Plant 2 Site (Operable Unit 4), Waukegan, Illinois

Well	Total Samples	Detection Frequency (%)	Average Concentration ($\mu\text{g/L}$)	Last Result ($\mu\text{g/L}$)	Mann-Kendall Result	Mann-Kendall Trend	Stability	RAO Criteria—Total CVOC Concentration < 1,000 $\mu\text{g/L}$ (Y/N) ^a		Last Sample Date
								1,000 $\mu\text{g/L}$ (Y/N) ^a	YES-Met Criteria	
MW-513S	10	100	2	1	93.4% (+)	No Trend	Not Stable	YES-Met Criteria	YES-Met Criteria	Aug-18
MW-516D	5	100	NA	0	NA	IS	NA	YES-Met Criteria	YES-Met Criteria	Aug-18
MW-516S	5	100	NA	0	NA	IS	NA	YES-Met Criteria	YES-Met Criteria	Aug-18
MW-528D	10	100	3	5	87.3% (+)	No Trend	Stable	YES-Met Criteria	YES-Met Criteria	Aug-18
MW-528S	10	100	0	0	87.3% (-)	No Trend	Not Stable	YES-Met Criteria	YES-Met Criteria	Aug-18
MW-609D	5	100	157	170	NA	IS	NA	YES-Met Criteria	YES-Met Criteria	Jun-15
MW-609S	5	100	97	114	NA	IS	NA	YES-Met Criteria	YES-Met Criteria	Jun-15
MW-610D	11	100	3795	8,200	99.9% (sig +)	Increasing	NA	NO	NO	Aug-18
MW-610S	11	100	99	42	99.3% (sig -)	Decreasing	NA	YES-Met Criteria	YES-Met Criteria	Aug-18
MW-611D	2	100	24	29	NA	IS	NA	YES-Met Criteria	YES-Met Criteria	Apr-14
MW-611S	2	100	NA	0	NA	IS	NA	YES-Met Criteria	YES-Met Criteria	Apr-14
MW-616D	6	100	49	55	86.4% (+)	No Trend	Stable	YES-Met Criteria	YES-Met Criteria	Jun-15
MW-616S	6	100	14	4	99.2% (sig -)	Decreasing	NA	YES-Met Criteria	YES-Met Criteria	Jun-15
MW-617D	6	100	70	99	97.2% (sig +)	Increasing	NA	YES-Met Criteria	YES-Met Criteria	Jun-15
MW-617S	6	100	89	74	64.0% (-)	No Trend	Not Stable	YES-Met Criteria	YES-Met Criteria	Jun-15
MW-618D	5	100	2	0	NA	IS	NA	YES-Met Criteria	YES-Met Criteria	Jun-15
MW-618S	5	100	NA	0	NA	IS	NA	YES-Met Criteria	YES-Met Criteria	Jun-15
MW-622S	5	100	1	3	NA	IS	NA	YES-Met Criteria	YES-Met Criteria	Jun-15
MW-623D	10	100	0	0	70.0% (-)	No Trend	Not Stable	YES-Met Criteria	YES-Met Criteria	Aug-18
MW-623S	10	100	0	0	50.0% (-)	No Trend	Not Stable	YES-Met Criteria	YES-Met Criteria	Aug-18
MW-624D	10	100	8	8	75.8% (-)	No Trend	Stable	YES-Met Criteria	YES-Met Criteria	Aug-18
MW-624S	10	100	NA	0	50.0% (.)	No Trend	NA	YES-Met Criteria	YES-Met Criteria	Aug-18
ST-MW-1D	5	100	43	100	NA	IS	NA	YES-Met Criteria	YES-Met Criteria	Aug-18
ST-MW-1S	5	100	3	4	NA	IS	NA	YES-Met Criteria	YES-Met Criteria	Aug-18
ST-MW-2D	5	100	1	0	NA	IS	NA	YES-Met Criteria	YES-Met Criteria	Aug-18
ST-MW-2S	5	100	NA	0	NA	IS	NA	YES-Met Criteria	YES-Met Criteria	Aug-18
ST-MW-3D	5	100	NA	0	NA	IS	NA	YES-Met Criteria	YES-Met Criteria	Aug-18
ST-MW-3S	5	100	3	6	NA	IS	NA	YES-Met Criteria	YES-Met Criteria	Aug-18
ST-MW-4D	5	100	NA	0	NA	IS	NA	YES-Met Criteria	YES-Met Criteria	Aug-18
ST-MW-4S	5	100	NA	0	NA	IS	NA	YES-Met Criteria	YES-Met Criteria	Aug-18
ST-MW-5D	5	100	NA	0	NA	IS	NA	YES-Met Criteria	YES-Met Criteria	Aug-18
ST-MW-5S	5	100	1	0	NA	IS	NA	YES-Met Criteria	YES-Met Criteria	Aug-18
W-5	10	100	0	0	50.0% (-)	No Trend	Not Stable	YES-Met Criteria	YES-Met Criteria	Aug-18

^aLists the monitoring wells that have met (yes/no) Remedial Action Objective (RAO) criteria of total CVOC concentration less than 1,000 $\mu\text{g/L}$ at each location. Total CVOC concentration is the sum of the detected concentrations of trichloroethene, cis-1,2-dichloroethene, and vinyl chloride.

Notes:

% = percent

>50% ND = greater than 50 percent nondetects

- = decreasing

+ = increasing

CVOC = chlorinated volatile organic compound

IS = insufficient data (less than 6 sample results)

NA = not applicable

sig = significance

$\mu\text{g/L}$ = micrograms per liter

Trend analysis performed using Mann-Kendall single-tailed test at 0.05 significance level.

For monitoring points exhibiting no trend at the 95% confidence level, concentrations are deemed stable if the coefficient of variation (COV) is equal to or less than one. The COV is a relative measure of variation in the groundwater concentration data and can be affected by the magnitude of the concentrations. As such, concentrations that are high can include significant variation while exhibiting a small COV. While there is no objective basis for using a particular value of COV to determine stability, values greater than 1 indicate that the data exhibit a greater detail of scatter about the mean.

Table 2. Total VOC Plume Mass- Thiessen Polygon Method (Shallow Aquifer)

Technical Memorandum Evaluation of Monitoring Results

OMC Plant 2 Site (Operable Unit 4), Waukegan, Illinois

Date	Trichloroethene	Dichloroethene	Vinyl Chloride	cis-1,2- Total
4/1/2014	2.8	29.3	5.5	37.6
9/1/2014	2.2	21.8	10.4	34.3
12/1/2014	2.8	22.5	13.6	38.8
3/1/2015	7.6	103.9	22.2	133.6
6/1/2015	3.5	7.1	1.4	12.0
6/1/2016	2.2	7.3	4.4	13.9
9/1/2016	1.2	12.2	5.3	18.6
12/1/2016	1.0	16.2	8.1	25.3
3/1/2018	3.3	6.2	2.9	12.4
8/1/2018	1.5	7.6	4.8	13.9

Notes:

Total porosity assumed to be 30 percent.

Values presented in kilograms (kg).

Table 3. Total VOC Plume Mass —Thiessen Polygon Method (Deep Zone)

Technical Memorandum Evaluation of Monitoring Results

OMC Plant 2 Site (Operable Unit 4), Waukegan, Illinois

Date	cis-1,2-			Total
	Trichloroethene	Dichloroethene	Vinyl Chloride	
4/1/2014	2,294.6	3,493.7	695.1	6,483.4
9/1/2014	2,190.4	2,610.1	673.9	5,474.4
12/1/2014	1,252.1	2,970.1	1,105.7	5,327.9
3/1/2015	1,252.1	2,666.5	888.5	4,807.0
6/1/2015	1,146.7	2,139.0	732.2	4,018.0
6/1/2016	326.3	2,152.2	599.4	3,077.9
9/1/2016	301.5	2,843.0	654.0	3,798.5
12/1/2016	354.9	3,155.4	649.8	4,160.1
3/1/2018	278.3	2,050.4	579.9	2,908.6
8/1/2018	864.5	1,888.8	569.7	3,323.0

Notes:

Total porosity assumed to be 30 percent.

Values presented in kilograms (kg).

Figures



Figure 1
Overview Map
OMC Plant 2
Waukegan, IL

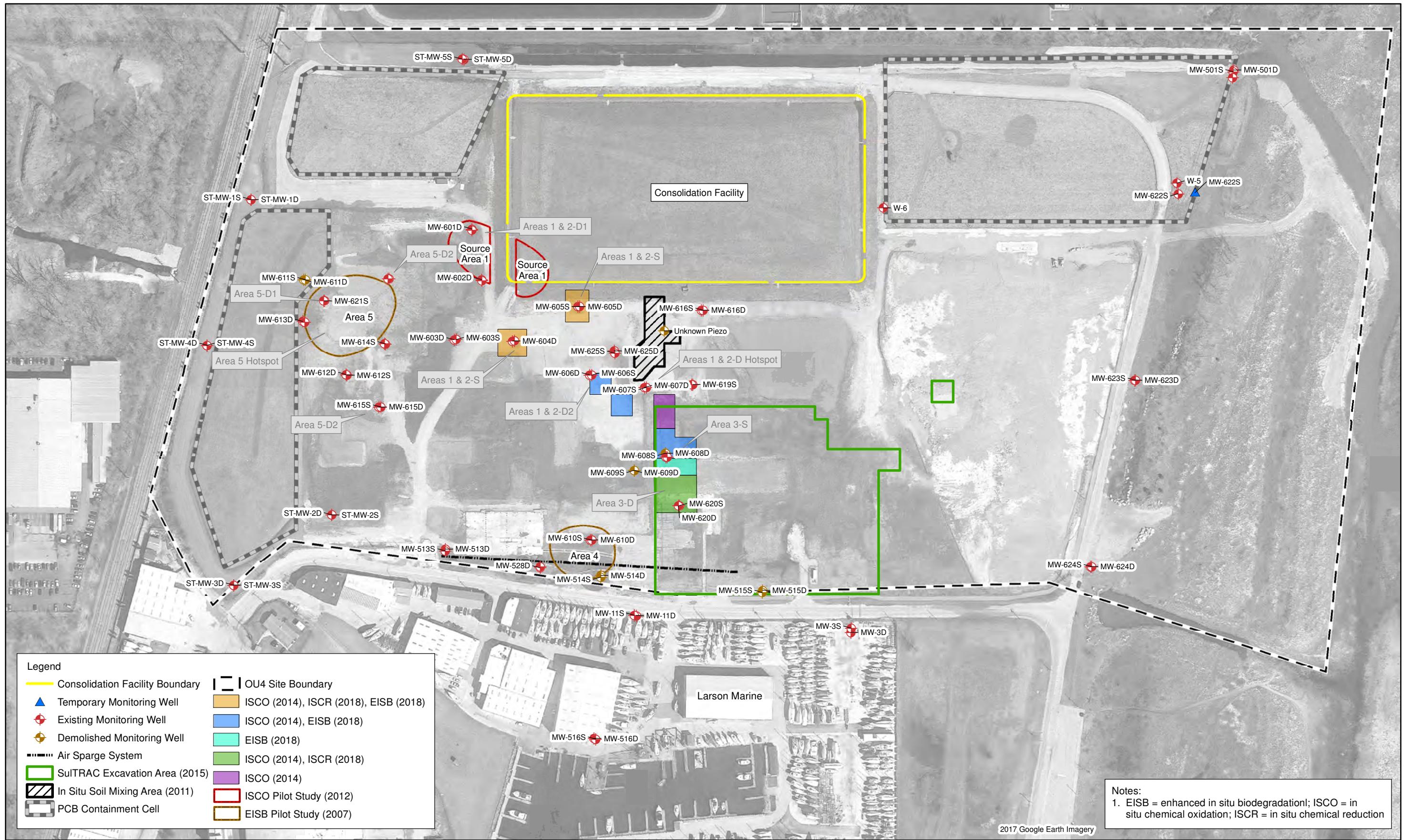


Figure 2
Shallow Remedial Action Areas
OMC Plant 2
Waukegan, IL

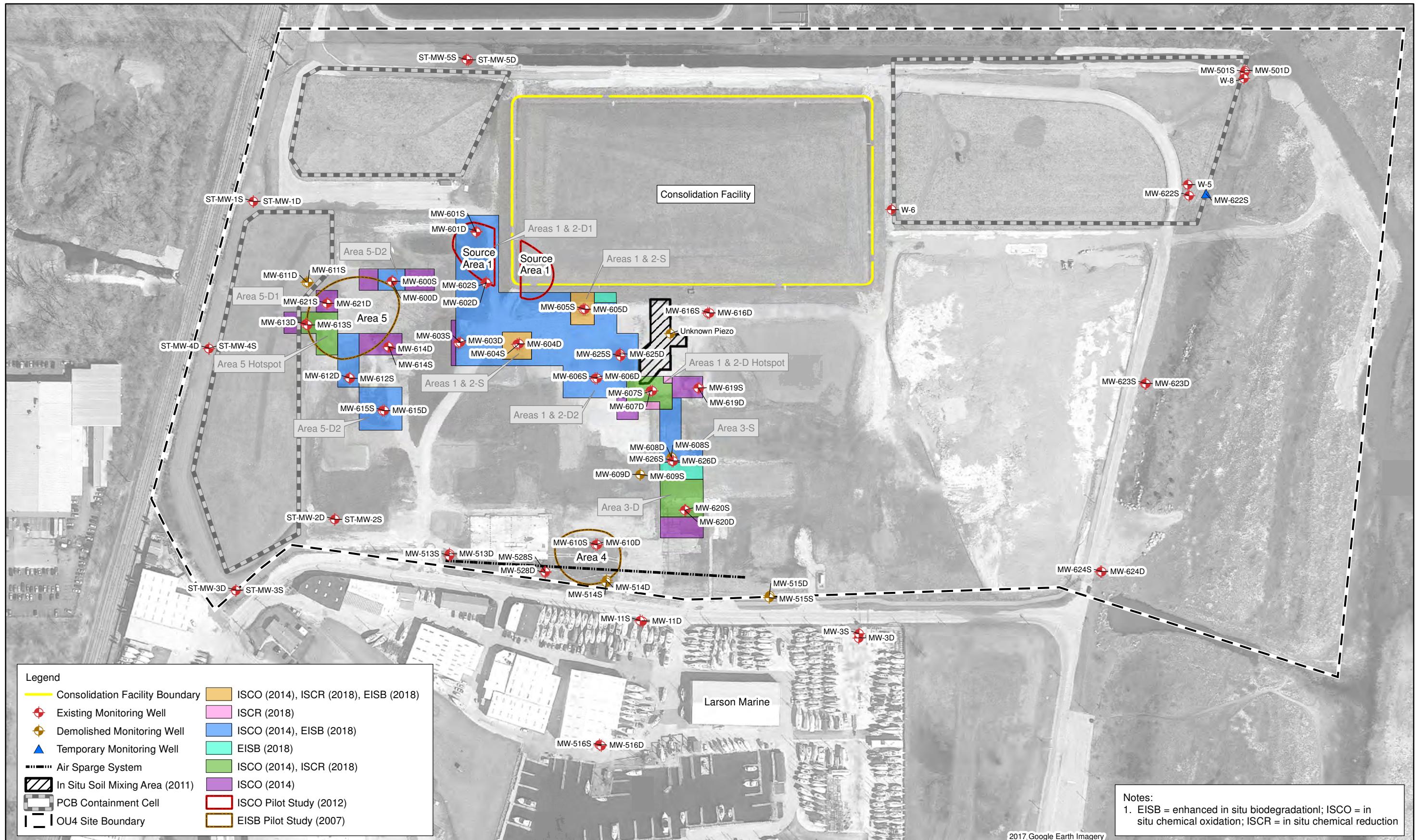


Figure 3
Deep Remedial Action Areas
OMC Plant 2
Waukegan, IL

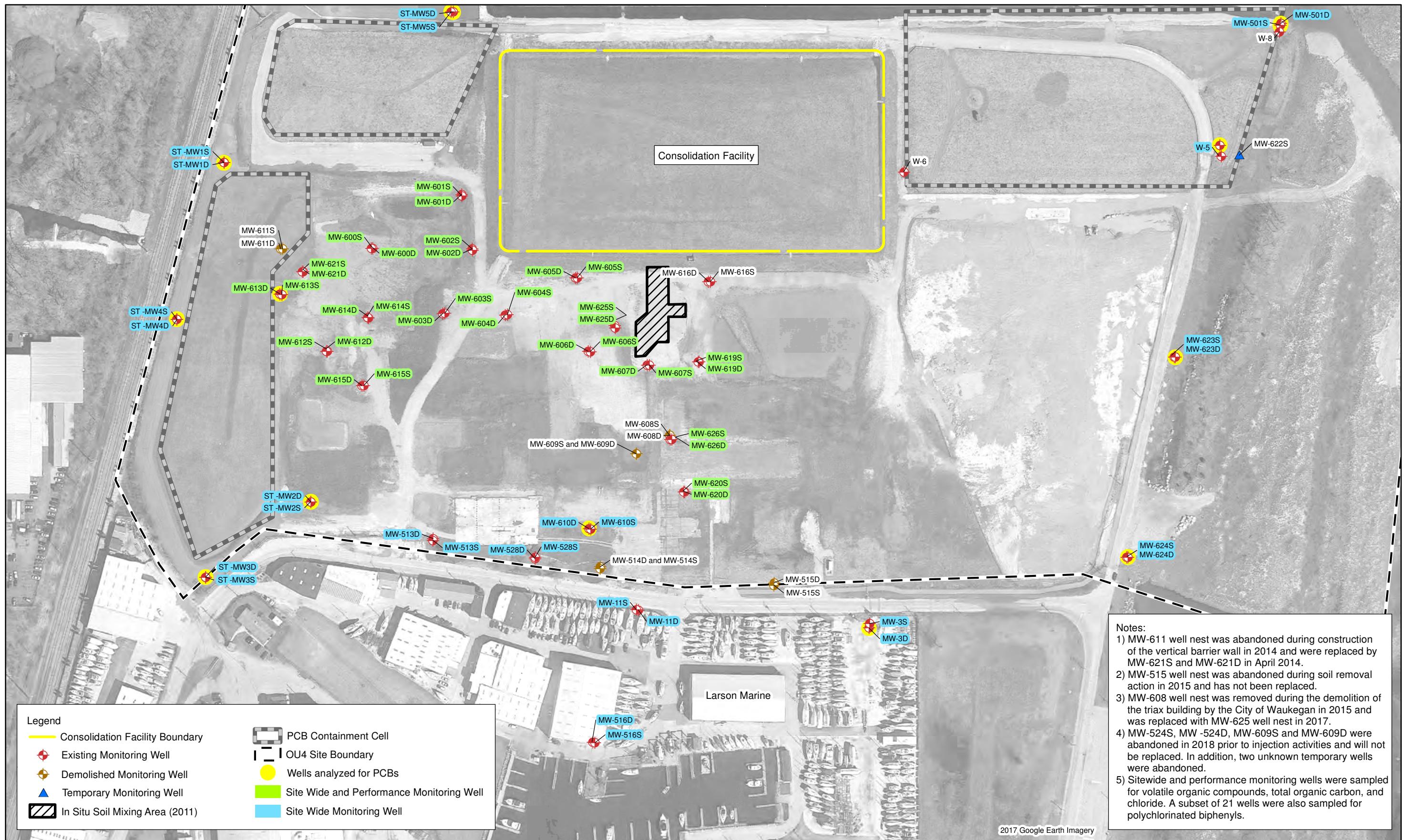
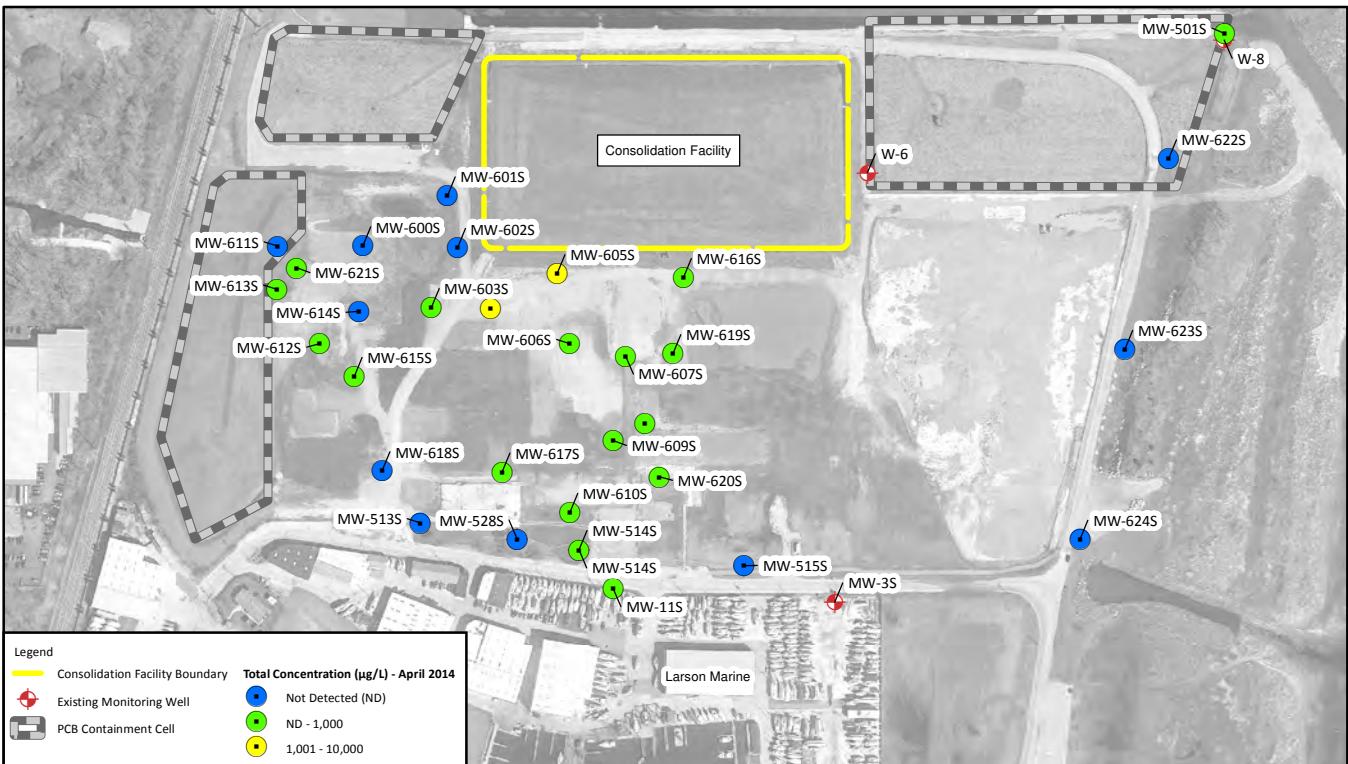
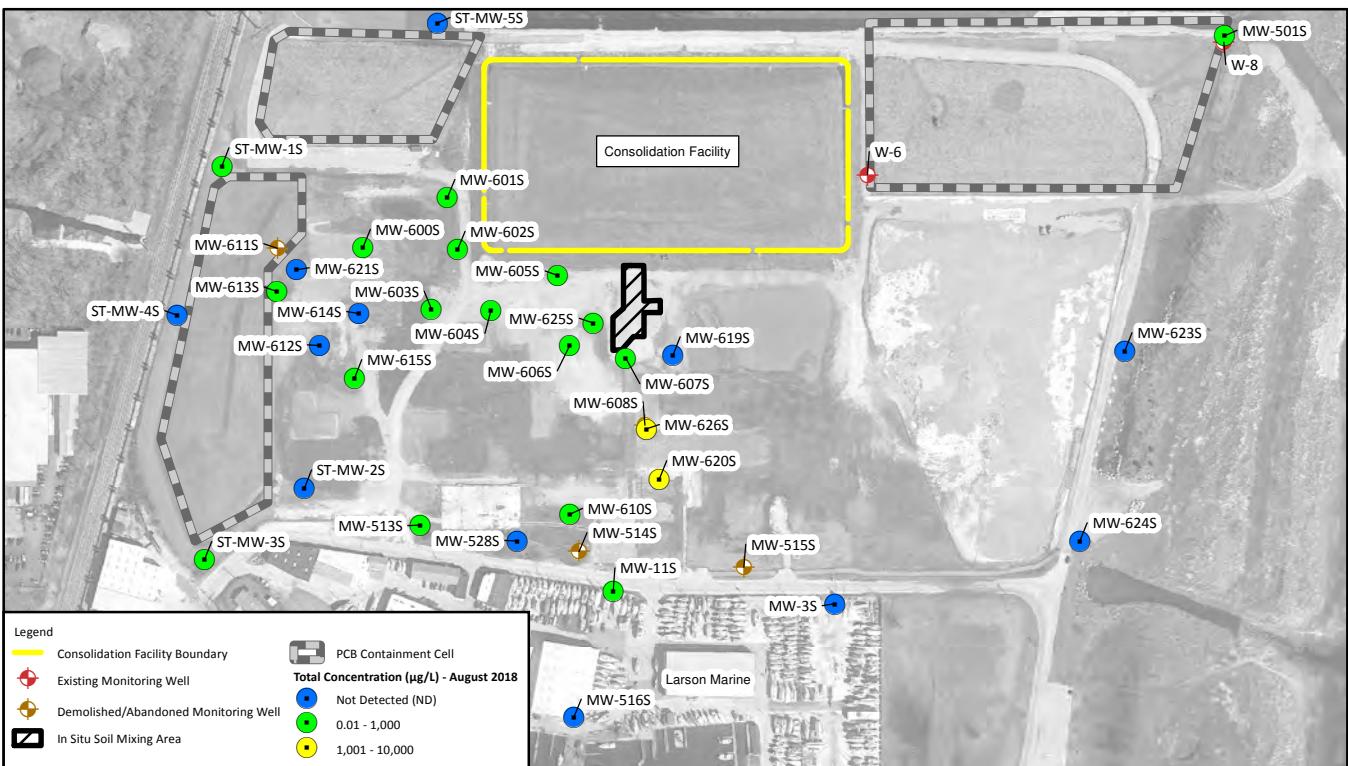


Figure 4
Monitoring Well and Groundwater Sampling Locations
OMC Plant 2
Waukegan, IL



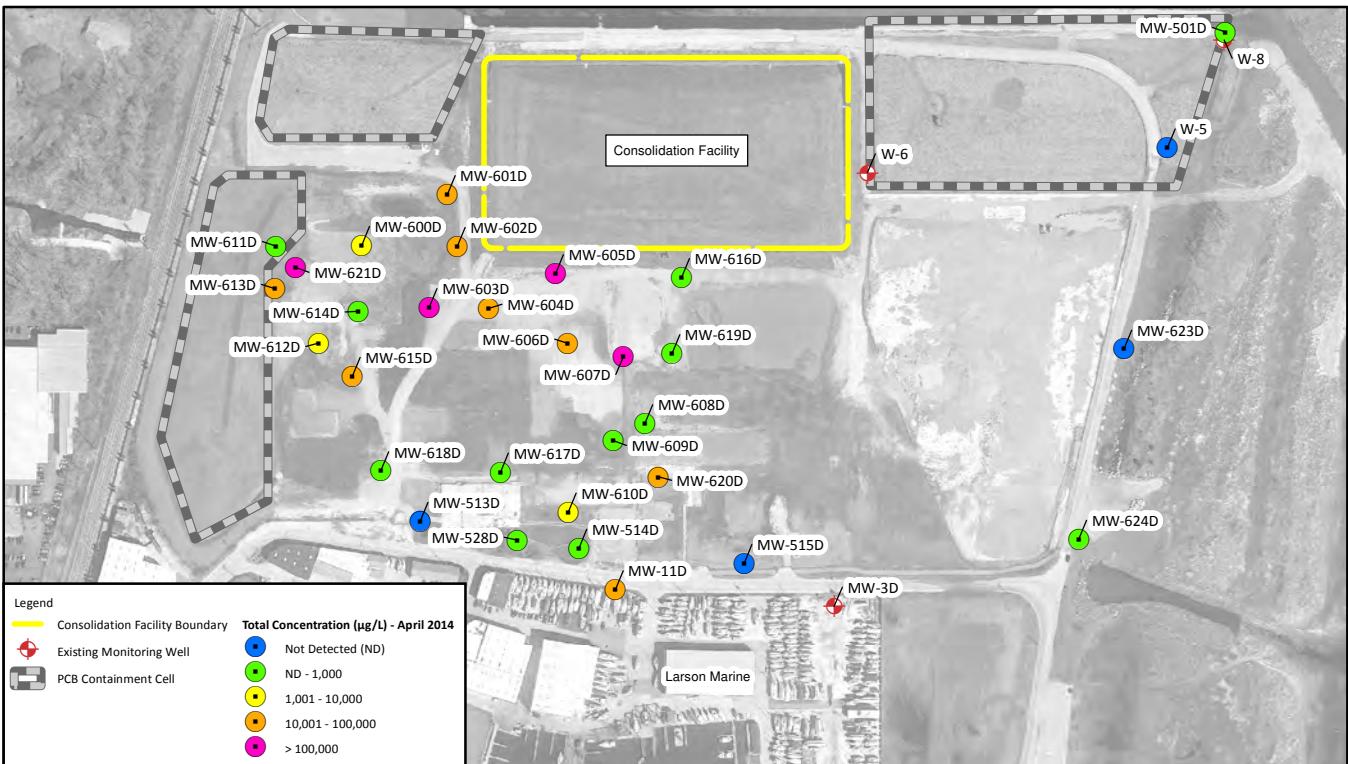
Baseline Monitoring Groundwater Results - April 2014 Shallow Wells



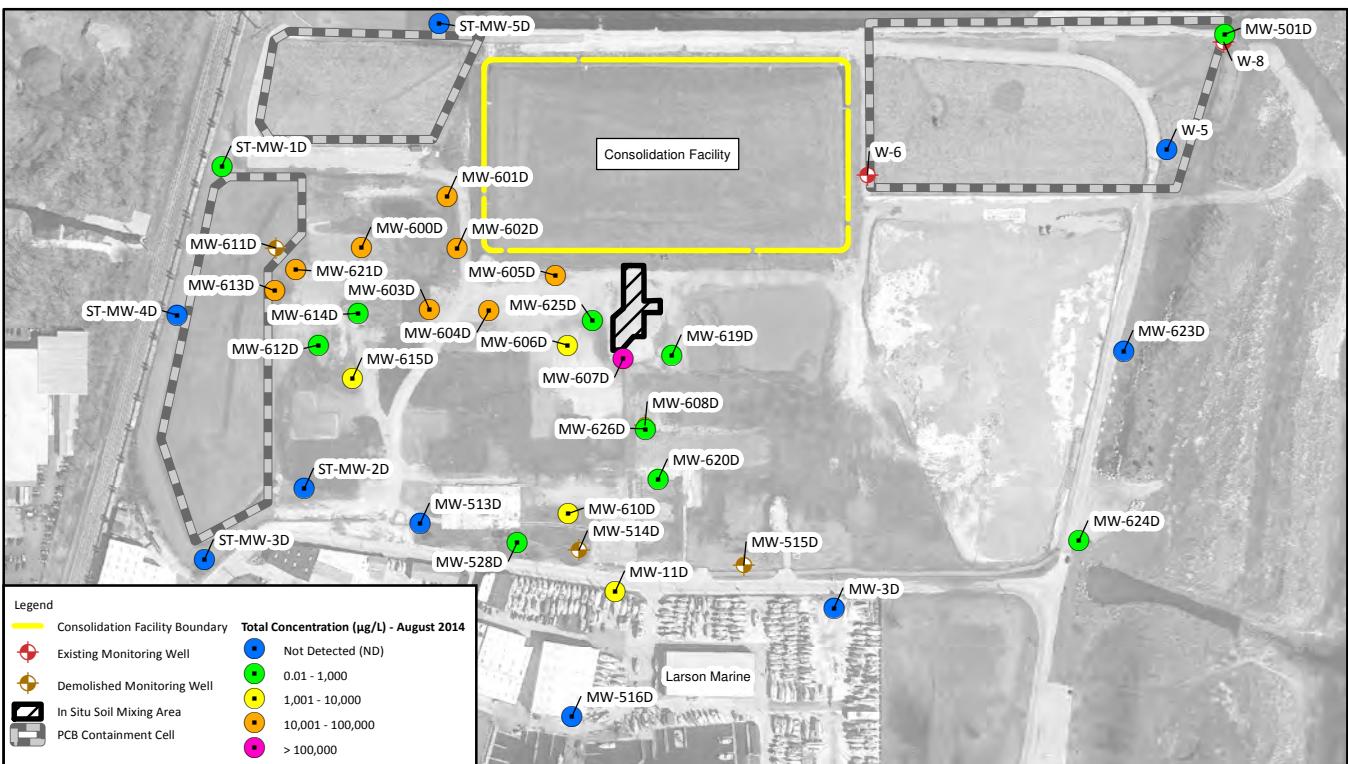
Post Injection Groundwater Results - August 2018 Shallow Wells

- Notes::**
1. MW-611 well nest was abandoned during construction of the vertical barrier wall in 2014 and were replaced by MW-621S and MW-621D in April 2014.
 2. MW-515 well nest was abandoned during soil removal action in 2015 and has not been replaced.
 3. MW-608 well nest was removed during the demolition of the triax building by the City of Waukegan in 2015 and was replaced with MW-625 well nest in 2017.
 4. MW-524S, MW-524D, MW-609S and MW-609D were abandoned in 2018 prior to injection activities and will not be replaced. In addition, two unknown temporary wells were abandoned.
 5. The total concentration is the sum of the detected concentrations for trichloroethene, cis-1,2-dichloroethene, and vinyl chloride.

Figure 5
Shallow Wells Groundwater Results - 2014 Versus 2018
OMC Plant 2
Waukegan, IL



Baseline Monitoring Groundwater Results - April 2014 Deep Wells



Post Injection Groundwater Results - August 2018 Deep Wells

- Notes::**
1. MW-611 well nest was abandoned during construction of the vertical barrier wall in 2014 and were replaced by MW-621S and MW-621D in April 2014.
 2. MW-515 well nest was abandoned during soil removal action in 2015 and has not been replaced.
 3. MW-608 well nest was removed during the demolition of the triax building by the City of Waukegan in 2015 and was replaced with MW-625 well nest in 2017.
 4. MW-524S, MW-524D, MW-609S and MW-609D were abandoned in 2018 prior to injection activities and will not be replaced. In addition, two unknown temporary wells were abandoned.
 5. The total concentration is the sum of the detected concentrations for trichloroethene, cis-1,2-dichloroethene, and vinyl chloride.

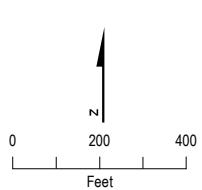


Figure 6
Deep Wells Groundwater Results - 2014 Versus 2018
OMC Plant 2
Waukegan, IL

Attachment 1
August 2018 Post-Injection
Memorandum

August 2018 Post-Injection Monitoring OMC Plant 2 Site (OU4), Waukegan, IL WA No. 237-RARA-0528/Contract No. EP-S5-06-01

PREPARED FOR: Sarah Rolfes/U.S. Environmental Protection Agency (EPA)

PREPARED BY: CH2M HILL, Inc. (CH2M)

DATE: February 4, 2019

PROJECT NUMBER: 696001.CV.01

REVISION NO.: 0

Introduction

This memorandum documents the field activities and results associated with the post-injection groundwater sampling conducted in August 2018 at the Outboard Marine Corporation (OMC) Plant 2 Site (Operable Unit [OU] 4) in Waukegan, Illinois. The injections were conducted in April and May 2018 and included the two trichloroethene (TCE) hotspot and three lower-concentration source areas shown in Figure 1. The work is pursuant to Technical Direction Memorandum No. 1 received from EPA (dated July 17, 2017) authorizing a second injection event and pre- and post-injection monitoring to evaluate the performance of the treatment. As specified in EPA's Record of Decision (EPA 2009), the overall remedial action objective for the groundwater remedy is to reduce the concentrations of the chemicals of concern (TCE, cis-1,2-dichloroethene [cis-1,2-DCE], and vinyl chloride) to levels that would allow the groundwater to be used for residential purposes without restrictions.

The monitoring wells in the performance and sitewide well networks and analysis to be performed as part of the monitoring program were documented in the *Quality Assurance Project Plan Addendum II Letter* submitted to EPA on October 5, 2017 (CH2M 2017).

Field Activities

The post-injection groundwater sampling event was conducted from August 20 to 24, 2018, and included the following:

- Collected depth to water and water quality measurements and groundwater samples from 34 performance monitoring wells and 29 sitewide monitoring wells. The sitewide wells include the 10 wells (well nests ST-MW1, ST-MW2, ST-MW3, ST-MW4, and ST-MW5) installed by SulTRAC around the polychlorinated biphenyl (PCB) containment cell and 6 wells (nests MW-3, MW-11, and MW-516) located on the Larsen Marine Services property. Table 1 and Figure 1 show the monitoring well locations.
- Managed groundwater purge water in 5-gallon buckets, and temporarily stored water in tanks and then treated it by the onsite water treatment system.
- All locations (63 locations) were sampled for analysis of volatile organic compounds (VOCs) (Figures 2a and 2b). Twenty-one of the 63 locations were also sampled for PCB analysis. The 21 locations sampled for PCBs included the 10 SulTRAC monitoring wells and 11 sitewide monitoring well locations along the eastern and southern site boundaries, which were previously

approved by EPA. Samples from the 34 performance monitoring wells were collected to be analyzed for total organic carbon (TOC) and chloride.

Groundwater Sampling

Groundwater samples were collected using low-flow methods as described in the quality assurance project plan (CH2M 2013). The monitoring wells were purged until the field parameters (temperature, specific conductance, dissolved oxygen, pH, oxidation reduction potential, and turbidity) were stable based on readings from a YSI multi-parameter flow-through cell. The low-flow parameters were recorded for each well on either paper or digital field forms (Attachment 1). Figures 3a and 3b show the water level elevations for the shallow and deep portions of the aquifer.

Samples requiring VOC and PCB analysis were submitted to a laboratory within EPA's Contract Laboratory Program, while TOC and chloride samples were sent to Katahdin Analytical Services of Scarborough, Maine.

Waste Management

Purge water from the sampling was containerized and treated by the water treatment system related to the onsite consolidation facility.

Personal protective equipment was doubled-bagged and placed with the general waste from the site for disposal.

Data Management and Evaluation

The field sample data were entered into EPA's Scribe software. The data were used to create chain-of-custody forms and for tracking purposes.

Following sample analysis, the Contract Laboratory Program laboratory transmitted the analytical data and supporting documentation to EPA for validation, after which, an electronic analytical report and an electronic and hard copy validation reports were sent to CH2M. Following EPA's data validation, the CH2M project chemist reviewed the validation summaries and entered the qualifiers into the project database. Attachment 2 contains the data usability evaluation technical memorandum.

Analytical Results

Table 2 shows stabilized field parameter results for samples collected in August 2018. Table 3 contains analytical laboratory results for VOC, PCBs, TOC, and chloride.

Figures 2a and 2b show the contaminant distribution based upon the total detected concentrations of TCE, cis-1,2-DCE, and vinyl chloride in the shallow and deep portions of the aquifer.

Conclusions and Recommendations

The analytical results for TCE, cis-1,2-DCE, and vinyl chloride are relatively similar to the previously collected data from March 2018. The groundwater quality and analytical results from the previous monitoring (April 2014 through December 2016), March 2018 pre-injection, and August 2018 post-injection sampling event can be compared to evaluate the effectiveness on the supplemental treatment. CH2M recommends continuing quarterly groundwater performance monitoring with the purpose of evaluating the overall performance of the enhanced in situ biodegradation and in situ chemical reduction treatment in reducing chlorinated VOC concentrations in the groundwater.

References

- CH2M HILL, Inc. (CH2M). 2013. *Quality Assurance Project Plan, Revision 2, OMC Plant 2 Site, Waukegan, Illinois. WA No. 105-RARA-0528, Contract No. EP-S5-06-01.* March.
- CH2M HILL, Inc. (CH2M). 2017. *Quality Assurance Project Plan Addendum II Letter, OMC Plant 2 Site, Waukegan, Illinois. WA No. 237-RARA-0528, Contract No. EP-S5-06-01.* October.
- U.S. Environmental Protection Agency (EPA). 2009. *Record of Decision, Outboard Marine Corporation Superfund Site, Waukegan. Lake County, Illinois.* February.

Tables

Table 1. Summary of Well IDs and Analytes for Post-Injection Groundwater Sampling - August 2018

OMC Plant 2, Waukegan, Illinois

Well Number/ Bottle Set	Field Duplicate	MS/MSD	VOCs	PCBs	TOC	Chloride	Date Collected	Notes
			3-40mL VOA w/HCl	2 - 1 L Amber Bottles	3x 40ml Amber	1-250 ml poly		
MW-11D	X						8/21/2018	Located in Larsen Marine property
MW-11S			X				8/21/2018	Located in Larsen Marine property
MW-3D			X	X			8/21/2018	Located in Larsen Marine property
MW-3S			X				8/21/2018	Located in Larsen Marine property
MW-501D			X	X			8/20/2018	
MW-501S			X	X			8/20/2018	
MW-513D			X				8/21/2018	
MW-513S			X				8/21/2018	
MW-516D	X		X				8/21/2018	Located in Larsen Marine property
MW-516S			X				8/21/2018	Located in Larsen Marine property
MW-528D			X				8/21/2018	
MW-528S			X				8/21/2018	
MW-600D			X		X	X	8/23/2018	
MW-600S	X		X		X	X	8/23/2018	
MW-601D			X		X	X	8/23/2018	
MW-601S	X		X		X	X	8/23/2018	
MW-602D	X		X		X	X	8/23/2018	
MW-602S			X		X	X	8/23/2018	
MW-603D			X		X	X	8/23/2018	
MW-603S			X		X	X	8/23/2018	
MW-604D			X		X	X	8/23/2018	
MW-604S			X		X	X	8/23/2018	
MW-605D	X		X		X	X	8/23/2018	
MW-605S			X		X	X	8/23/2018	
MW-606D			X		X	X	8/22/2018	
MW-606S			X		X	X	8/22/2018	
MW-607D			X		X	X	8/22/2018	
MW-607S			X		X	X	8/22/2018	
MW-610D			X	X			8/21/2018	
MW-610S			X	X			8/21/2018	
MW-612D			X		X	X	8/22/2018	
MW-612S	X		X		X	X	8/22/2018	
MW-613D			X	X	X	X	8/22/2018	
MW-613S			X		X	X	8/22/2018	
MW-614D			X		X	X	8/22/2018	
MW-614S			X		X	X	8/22/2018	
MW-615D			X		X	X	8/22/2018	
MW-615S			X		X	X	8/22/2018	
MW-619D			X		X	X	8/22/2018	
MW-619S			X		X	X	8/22/2018	
MW-620D			X		X	X	8/22/2018	Temporary well
MW-620S			X		X	X	8/22/2018	Temporary well
MW-621D			X		X	X	8/22/2018	
MW-621S	X		X		X	X	8/22/2018	
MW-623D			X	X			8/20/2018	
MW-623S			X	X			8/20/2018	
MW-624D			X	X			8/20/2018	
MW-624S	X		X	X			8/20/2018	
W-5	X		X	X			8/21/2018	Co-located with MW-622S (temp)
ST-MW-1D			X	X			8/20/2018	SulTrac Installed Well
ST-MW-1S			X	X			8/20/2018	SulTrac Installed Well
ST-MW-2D	X		X	X			8/21/2018	SulTrac Installed Well
ST-MW-2S			X	X			8/21/2018	SulTrac Installed Well
ST-MW-3D			X	X			8/21/2018	SulTrac Installed Well
ST-MW-3S			X	X			8/21/2018	SulTrac Installed Well
ST-MW-4D			X	X			8/21/2018	SulTrac Installed Well
ST-MW-4S			X	X			8/21/2018	SulTrac Installed Well
ST-MW-5D			X	X			8/20/2018	SulTrac Installed Well
ST-MW-5S			X	X			8/20/2018	SulTrac Installed Well
MW-625D			X		X	X	8/23/2018	
MW-625S			X		X	X	8/23/2018	
MW-626D			X		X	X	8/22/2018	
MW-626S			X		X	X	8/22/2018	
Totals	7	4	61	21	34	34		
OMC-EB-082318			X	X	X	X		
OMC-FB-082318			X	X	X	X		
TB (5)			X					

Notes:

VOC and PCB samples shipped to CLP lab Chemtech.

TOC and Chloride samples will be shipped to Katahdin Analytical Services, Inc

Field duplicates collected for every 10 sample sand MS/MSD for every 20 samples.

One field blank and one equipment blank to be collected. OMC-FBMDDYY and OMC-EBMDDYY

Table 2. Field Parameters, August 2018*Post-Injection Monitoring*

OMC Plant 2 Site (OU4) - Waukegan, IL

	MW-003S 8/21/2018	MW-003D 8/21/2018	MW-011S 8/21/2018	MW-011D 8/21/2018	MW-501S 8/20/2018	MW-501D 8/20/2018	MW-513S 8/21/2018	MW-513D 8/21/2018	MW-516S 8/21/2018	MW-516D 8/21/2018	MW-528S 8/21/2018	MW-528D 8/21/2018	MW-600S 8/23/2018	MW-600D 8/23/2018	
Depth to Water	ft btoc	5.35	5.11	5.5	5.21	3.95	3.95	3.02	3.11	2.2	2.19	4.53	4.45	4.73	4.82
Dissolved Oxygen	mg/L	2.25	0.03	0.44	0.03	0.11	0.2	0.26	0.24	0.11	0.01	8.47	7.44	0.12	3.2
Specific Conductivity	mS/cm	0.289	6.183	1.252	1.312	0.644	0.625	0.952	1.684	0.855	8.302	0.856	1.139	0.662	1.75
Flow Rate	mL/min	250	300	300	300	280	300	400	400	300	300	300	300	300	300
Oxidation Reduction Potential	mV	132.5	-153.8	104.9	-131.9	-198.2	-107.9	-44.6	-112.1	2.3	-143.9	235.6	-50.3	-104.5	-282.1
pH	pH units	6.65	7.51	6.99	7.04	7.03	7.1	6.96	7.14	6.67	7.38	7.83	6.95	7.11	7.64
Temperature	°C	19.8	13.98	21.17	14.82	20.57	13.91	20.53	14.15	24.95	16.6	19.95	14.76	19.95	14.14
Turbidity	NTU	0.7	0.7	6.5	9.9	0.1	1.9	0	0.3	2.1	1.2	0	0.9	0	3

Notes:

°C = degrees Celsius

ft btoc = feet below top of casing

mg/L = milligrams per liter

mL/min = millimeters per minute

mS/cm = millSiemens per centimeter

mV = millivolts

NTU = Nephelometric turbidity units

Table 2. Field Parameters, August 2018*Post-Injection Monitoring*

OMC Plant 2 Site (OU4) - Waukegan, IL

	MW-601S 8/23/2018	MW-601D 8/23/2018	MW-602S 8/23/2018	MW-602D 8/23/2018	MW-603S 8/23/2018	MW-603D 8/23/2018	MW-604S 8/23/2018	MW-604D 8/23/2018	MW-605S 8/23/2018	MW-605D 8/23/2018	MW-606S 8/22/2018	MW-606D 8/22/2018	MW-607S 8/22/2018	MW-607D 8/22/2018	
Depth to Water	ft btoc	4.7	4.52	4.15	4.35	4.42	4.1	4.21	4.1	5.81	5.68	5.21	4.35	4.9	4.64
Dissolved Oxygen	mg/L	0.09	2.75	0.07	3.16	0.13	3.86	0.26	0.12	0.24	0.37	0.81	0.23	0.22	0.18
Specific Conductivity	mS/cm	0.835	2.229	0.606	2.792	0.846	2.364	1.221	4.007	0.901	3.152	1.328	6.549	0.919	2.86
Flow Rate	mL/min	300	300	250	300	400	300	400	400	400	400	400	400	350	400
Oxidation Reduction Potential	mV	-96.1	-176.9	-130.5	-154.8	-124.3	-83.4	-147.6	-251	-97.8	-111.3	20.9	-159.1	-121.9	-33.8
pH	pH units	6.96	6.57	7.19	7.49	6.89	5.82	7.38	7.39	6.78	7.6	8.71	8.35	7.58	6.9
Temperature	°C	19.97	15.1	20.49	15.23	19.97	14.29	20.15	14.54	21.36	14.38	21.13	15.01	22.96	14.48
Turbidity	NTU	0	0.9	0	4.5	0	0.7	0	0	0	1.5	2.1	1880.2	0	0

Notes:

°C = degrees Celsius

ft btoc = feet below top of casing

mg/L = milligrams per liter

mL/min = millimeters per minute

mS/cm = millSiemens per centimeter

mV = millivolts

NTU = Nephelometric turbidity units

Table 2. Field Parameters, August 2018*Post-Injection Monitoring*

OMC Plant 2 Site (OU4) - Waukegan, IL

	MW-610S 8/21/2018	MW-610D 8/21/2018	MW-612S 8/22/2018	MW-612D 8/22/2018	MW-613S 8/22/2018	MW-613D 8/22/2018	MW-614S 8/22/2018	MW-614D 8/22/2018	MW-615S 8/22/2018	MW-615D 8/22/2018	MW-619S 8/22/2018	MW-619D 8/22/2018	MW-620S 8/22/2018	MW-620D 8/22/2018	
Depth to Water	ft btoc	7.02	6.94	4.76	4.45	5.82	5.71	4.52	4.5	6.05	5.65	5.45	5.5	4.55	4.14
Dissolved Oxygen	mg/L	9.4	0.06	0.13	2.34	0.15	4.09	0.14	4.02	0.12	4.59	0.22	0.16	1.52	0.16
Specific Conductivity	mS/cm	0.755	1.284	1.592	3.883	1.961	3.339	0.955	4.321	0.872	3.304	1.387	2.465	2.335	2.437
Flow Rate	mL/min	300	275	300	300	250	300	160	300	250	400	400	300	300	400
Oxidation Reduction Potential	mV	193.6	-134.9	-134	-164.6	-164.5	-139	-104.9	-146.7	-180.9	-223.9	-38.5	-305.7	-222.3	-285.1
pH	pH units	7.44	7.28	6.76	6.35	7.47	6.98	6.81	7.33	7.09	9.16	7.58	7.99	7.01	6.51
Temperature	°C	18.36	14.59	21.49	15.21	19.1	14.84	20.04	17.84	21.16	16.5	20.3	14.41	20.61	14.65
Turbidity	NTU	0	1.7	1.5	7.6	0	3.6	0	8.2	0	4.9	0	0.8	0	33.5

Notes:

°C = degrees Celsius

ft btoc = feet below top of casing

mg/L = milligrams per liter

mL/min = millimeters per minute

mS/cm = millisiemens per centimeter

mV = millivolts

NTU = Nephelometric turbidity units

Table 2. Field Parameters, August 2018*Post-Injection Monitoring*

OMC Plant 2 Site (OU4) - Waukegan, IL

	MW-621S 8/22/2018	MW-621D 8/22/2018	MW-623S 8/20/2018	MW-623D 8/20/2018	MW-624S 8/20/2018	MW-624D 8/20/2018	MW-625S 8/23/2018	MW-625D 8/23/2018	MW-626S 8/22/2018	MW-626D 8/22/2018	ST-MW-1S 8/20/2018	ST-MW-1D 8/20/2018	ST-MW-2S 8/21/2018	ST-MW-2D 8/21/2018	ST-MW-3S 8/21/2018	
Depth to Water	ft btoc	6.11	6.05	4.06	4.23	5.95	6.01	4.25	4.75	6.9	7.14	1.8	1.64	2.44	2.39	1.67
Dissolved Oxygen	mg/L	0.14	0	0.24	0.05	0.29	0.3	0.27	0.2	0.2	0.2	0.09	0.05	0.13	0.22	0.27
Specific Conductivity	mS/cm	1.662	3.583	0.558	0.548	0.604	1.58	0.669	3.26	2.135	2.699	1.416	4.365	0.954	1.355	1.448
Flow Rate	mL/min	280	225	300	300	250	300	400	400	400	400	300	300	400	400	400
Oxidation Reduction Potential	mV	-143.6	-278.6	-171.2	-152.6	99.7	-151.5	-161.1	-161.6	-131.7	-249.8	-92.5	-97.3	-97.5	-113.3	-70.4
pH	pH units	7.1	6.65	7.15	7.53	7.33	7.3	7.36	9.32	7.17	7.38	7.08	7.08	7.13	7.02	7.14
Temperature	°C	19.49	14.84	19.2	14.03	20.25	14.71	19.42	14.39	18.67	14.12	21.35	16.63	19.22	15.1	21.25
Turbidity	NTU	0	6.6	0	0.1	0.3	2.4	0	4.3	0	11.9	6.8	2.5	4.9	6.1	4.8

Notes:

°C = degrees Celsius

ft btoc = feet below top of casing

mg/L = milligrams per liter

mL/min = millimeters per minute

mS/cm = millSiemens per centimeter

mV = millivolts

NTU = Nephelometric turbidity units

Table 2. Field Parameters, August 2018*Post-Injection Monitoring*

OMC Plant 2 Site (OU4) - Waukegan, IL

	ft btoc	ST-MW-3D	ST-MW-4S	ST-MW-4D	ST-MW-5S	ST-MW-5D	W-5
		8/21/2018	8/21/2018	8/21/2018	8/20/2018	8/20/2018	8/21/2018
Depth to Water		1.65	2.88	2.9	3.79	3.77	6.18
Dissolved Oxygen	mg/L	0.19	0.33	0.09	0.05	8.79	0.26
Specific Conductivity	mS/cm	1.492	1.833	1.529	2.031	2.003	2.345
Flow Rate	mL/min	400	400	400	250	250	300
Oxidation Reduction Potential	mV	-140.1	-132.2	268.3	-143.7	-132.9	-150.8
pH	pH units	7.2	7.1	7.28	7.01	7.28	7.24
Temperature	°C	16.67	20.52	16.31	23.92	18.85	14.56
Turbidity	NTU	0.6	2.3	21.8	0	0.2	1.2

Notes:

°C = degrees Celsius

ft btoc = feet below top of casing

mg/L = milligrams per liter

mL/min = millimeters per minute

mS/cm = millisiemens per centimeter

mV = millivolts

NTU = Nephelometric turbidity units

Table 3. Analytical Results, August 2018

Post-Injection Monitoring

OMC Plant 2 Site (OU4) - Waukegan, IL

Parameter	MCL ^a	Unit	MW-003S 8/21/2018	MW-003D 8/21/2018	MW-011S 8/21/2018	MW-011D 8/21/2018	MW-501S 8/20/2018	MW-501D 8/20/2018	MW-513S 8/21/2018	MW-513D 8/21/2018	MW-516S 8/21/2018	MW-516D 8/21/2018	MW-528S 8/21/2018	MW-528D 8/21/2018	MW-600S 8/23/2018	MW-600D 8/23/2018	MW-601S 8/23/2018	MW-601D 8/23/2018	MW-602S 8/23/2018
Polychlorinated Biphenyls (PCBs)																			
Aroclor 1016	-	ug/L	-	-	1 U	-	-	-	1 U	1 U	-	-	-	-	-	-	-	-	
Aroclor 1221	-	ug/L	-	-	1 U	-	-	-	1 U	1 U	-	-	-	-	-	-	-	-	
Aroclor 1232	-	ug/L	-	-	1 U	-	-	-	1 U	1 U	-	-	-	-	-	-	-	-	
Aroclor 1242	-	ug/L	-	-	1 U	-	-	-	1 U	1 U	-	-	-	-	-	-	-	-	
Aroclor 1248	-	ug/L	-	1.9 J	-	-	-	-	1 U	1 U	-	-	-	-	-	-	-	-	
Aroclor 1254	-	ug/L	-	-	1 U	-	-	-	1 U	1 U	-	-	-	-	-	-	-	-	
Aroclor 1260	-	ug/L	-	-	1 U	-	-	-	1 U	1 U	-	-	-	-	-	-	-	-	
Aroclor 1262	-	ug/L	-	-	1 U	-	-	-	1 U	1 U	-	-	-	-	-	-	-	-	
Aroclor 1268	-	ug/L	-	-	1 U	-	-	-	1 U	1 U	-	-	-	-	-	-	-	-	
Volatile Organic Compounds																			
1,1,1-Trichloroethane	200	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
1,1,2,2-Tetrachloroethane	-	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
1,1,2-Trichloroethane	5	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
1,1-Dichloroethane	-	ug/L	5 U	5 U	5 U	100 U	24	6.5	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
1,1-Dichloroethene	7	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
1,2,3-Trichlorobenzene	-	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
1,2,4-Trichlorobenzene	70	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
1,2-Dibromo-3-chloropropane	0.2	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
1,2-Dibromoethane	0.05	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
1,2-Dichlorobenzene	600	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
1,2-Dichloroethane	5	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
1,2-Dichloropropane	5	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
1,3-Dichlorobenzene	-	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
1,4-Dichlorobenzene	75	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
2-Butanone	-	ug/L	10 U	10 U	10 U	200 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	400 U	10 U	400 U	10 U	
2-Hexanone	-	ug/L	10 U	10 U	10 U	200 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	400 U	10 U	400 U	10 U	
4-Methyl-2-Pentanone	-	ug/L	10 U	10 U	10 U	200 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	400 U	10 U	400 U	10 U	
Acetone	-	ug/L	3.6 J	4.4 J	3.3 J	200 U	10 U	10 U	3.7 J	4.2 J	4.5 J	4.8 J	3.8 J	4.6 J	10 U	400 U	3 J	400 U	10 U
Benzene	5	ug/L	5 U	120	5 U	100 U	5 U	5 U	5 U	5 U	5 U	710 J	5 U	5 U	200 U	5 U	200 U	5 U	
Bromochloromethane	-	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
Bromodichloromethane ^b	80	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
Bromoform ^b	80	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
Bromomethane	-	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
Carbon Disulfide	-	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
Carbon tetrachloride	5	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
Chlorobenzene	100	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
Chlorodibromomethane ^b	80	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
Chloroethane	-	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
Chloroform ^b	80	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
Chloromethane	-	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
cis-1,2-Dichloroethene	70	ug/L	5 U	5 U	4.2 J	2,800	12	9.2	14 J	5 U	5 U	5 U	5 U	5.2	5 U	7,000	5 U	9,100	1.8 J
cis-1,3-Dichloropropene	-	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
Cyclohexane	-	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
Dichlorodifluoromethane	-	ug/L	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	200 U	5 U	200 U	5 U	
Ethylbenzene	700	ug/L	5 U	1.4 J	5 U	100 U	5 U	5 U	5 U	5 U</									

Table 3. Analytical Results, August 2018

Post-injection Monitoring

OMC Plant 2 Site (OU4) - Waukegan, IL

Parameter	MCL ^a	Unit	MW-602D 8/23/2018	MW-603S 8/23/2018	MW-603D 8/23/2018	MW-604S 8/23/2018	MW-604D 8/23/2018	MW-605S 8/23/2018	MW-605D 8/23/2018	MW-606S 8/22/2018	MW-606D 8/22/2018	MW-607S 8/22/2018	MW-607D 8/22/2018	MW-610S 8/21/2018	MW-610D 8/21/2018	MW-612S 8/22/2018	MW-612D 8/22/2018	MW-613S 8/22/2018	MW-613D 8/22/2018
Polychlorinated Biphenyls (PCBs)																			
Aroclor 1016	-	ug/L	-	-	-	-	-	-	-	-	-	-	-	1 U	1 U	-	-	-	1 U
Aroclor 1221	-	ug/L	-	-	-	-	-	-	-	-	-	-	-	1 U	1 U	-	-	-	1 U
Aroclor 1232	-	ug/L	-	-	-	-	-	-	-	-	-	-	-	1 U	1 U	-	-	-	1 U
Aroclor 1242	-	ug/L	-	-	-	-	-	-	-	-	-	-	-	9.3 J	1 U	-	-	-	1 U
Aroclor 1248	-	ug/L	-	-	-	-	-	-	-	-	-	-	-	1 U	1 U	-	-	-	18,000 J
Aroclor 1254	-	ug/L	-	-	-	-	-	-	-	-	-	-	-	1 U	1 U	-	-	-	1 U
Aroclor 1260	-	ug/L	-	-	-	-	-	-	-	-	-	-	-	1 U	1 U	-	-	-	1 U
Aroclor 1262	-	ug/L	-	-	-	-	-	-	-	-	-	-	-	1 U	1 U	-	-	-	1 U
Aroclor 1268	-	ug/L	-	-	-	-	-	-	-	-	-	-	-	1 U	1 U	-	-	-	1 U
Volatile Organic Compounds																			
1,1,1-Trichloroethane	200	ug/L	200 U	5 U	5 U	5 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U						
1,1,2,2-Tetrachloroethane	-	ug/L	200 U	5 U	5 U	5 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U						
1,1,2-Trichloroethane	5	ug/L	200 U	5 U	5 U	5 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U						
1,1-Dichloroethane	-	ug/L	200 U	5 U	200 U	5 U	200 U	2.1 J	200 U	5 U	5 U	5 U	8.4	5 U	250 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	7	ug/L	200 U	5 U	200 U	5 U	200 U	5.9	200 U	5 U	5 U	5 U	1,100 J	5 U	250 U	5 U	5 U	5 U	54
1,2,3-Trichlorobenzene	-	ug/L	200 U	5 U	5 U	5 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U						
1,2,4-Trichlorobenzene	70	ug/L	200 U	5 U	5 U	5 U	5 U	250 U	5 U	5 U	5 U	5 U	5.1						
1,2-Dibromo-3-chloropropane	0.2	ug/L	200 U	5 U	5 U	5 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U						
1,2-Dibromoethane	0.05	ug/L	200 U	5 U	5 U	5 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U						
1,2-Dichlorobenzene	600	ug/L	200 U	5 U	5 U	5 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U						
1,2-Dichloroethane	5	ug/L	200 U	5 U	5 U	5 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U						
1,2-Dichloropropane	5	ug/L	200 U	5 U	5 U	5 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U						
1,3-Dichlorobenzene	-	ug/L	200 U	5 U	5 U	5 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U						
1,4-Dichlorobenzene	75	ug/L	200 U	5 U	5 U	5 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U						
2-Butanone	-	ug/L	400 U	10 U	120 J+	10 U	10 R	10 U	500 U	10 U	280	10 U	10 U						
2-Hexanone	-	ug/L	400 U	10 U	10 U	10 U	10 U	500 U	10 U	10 U	10 U	10 U	10 U						
4-Methyl-2-Pentanone	-	ug/L	400 U	10 U	10 U	10 U	10 U	500 U	10 U	10 U	10 U	10 U	10 U						
Acetone	-	ug/L	400 U	10 U	400 U	10 U	400 U	10 U	400 U	5.3 J	91 J+	3.6 J	10 R	5.4 J	500 U	3.7 J	200	5.6 J	10 U
Benzene	5	ug/L	200 U	5 U	5 U	5 U	4.4 J	5 U	250 U	5 U	5 U	5 U	5 U						
Bromochloromethane	-	ug/L	200 U	5 U	5 U	5 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U						
Bromodichloromethane ^b	80	ug/L	200 U	5 U	5 U	5 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U						
Bromoform ^b	80	ug/L	200 U	5 U	5 U	5 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U						
Bromomethane	-	ug/L	200 U	5 U	5 U	5 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U						
Carbon Disulfide	-	ug/L	200 U	5 U	200 U	71	200 U	5 U	200 U	5 U	5 U	5 U	2.8 J	5 U	250 U	5 U	5 U	5 U	1.8 J
Carbon tetrachloride	5	ug/L	200 U	5 U	5 U	5 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U						
Chlorobenzene	100	ug/L	200 U	5 U	5 U	5 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U						
Chlorodibromomethane ^b	80	ug/L	200 U	5 U	5 U	5 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U						
Chloroethane	-	ug/L	200 U	5 U	5 U	5 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U						
Chloroform ^b	80	ug/L	200 U	5 U	5 U	5 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U						
Chloromethane	-	ug/L	200 U	5 U	5 U	5 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U						
cis-1,2-Dichloroethene	70	ug/L	19,000	5 U	8,600	91	33,000	440	56,000	97 J	1,300	1.4 J	170,000	10	4,600	5 U	18	9.6	6,400
cis-1,3-Dichloropropene	-	ug/L	200 U	5 U	5 U	5 U	5 U	250 U	5 U										

Table 3. Analytical Results, August 2018

Post-Injection Monitoring

OMC Plant 2 Site (OU4) - Waukegan, IL

Parameter	MCL ^a	Unit	MW-614S 8/22/2018	MW-614D 8/22/2018	MW-615S 8/22/2018	MW-615D 8/22/2018	MW-619S 8/22/2018	MW-619D 8/22/2018	MW-620S 8/22/2018	MW-620D 8/22/2018	MW-621S 8/22/2018	MW-621D 8/22/2018	MW-623S 8/20/2018	MW-623D 8/20/2018	MW-624S 8/20/2018	MW-624D 8/20/2018	MW-625S 8/23/2018	MW-625D 8/23/2018	MW-626S 8/22/2018
Polychlorinated Biphenyls (PCBs)																			
Aroclor 1016	-	ug/L	-	-	-	-	-	-	-	-	-	1 U	1 U	1 U	1 U	-	-	-	
Aroclor 1221	-	ug/L	-	-	-	-	-	-	-	-	-	1 U	1 U	1 U	1 U	-	-	-	
Aroclor 1232	-	ug/L	-	-	-	-	-	-	-	-	-	1 U	1 U	1 U	1 U	-	-	-	
Aroclor 1242	-	ug/L	-	-	-	-	-	-	-	-	-	1 U	1 U	1 U	1 U	-	-	-	
Aroclor 1248	-	ug/L	-	-	-	-	-	-	-	-	-	1 U	1 U	1 U	1 U	-	-	-	
Aroclor 1254	-	ug/L	-	-	-	-	-	-	-	-	-	1 U	1 U	1 U	1 U	-	-	-	
Aroclor 1260	-	ug/L	-	-	-	-	-	-	-	-	-	1 U	1 U	1 U	1 U	-	-	-	
Aroclor 1262	-	ug/L	-	-	-	-	-	-	-	-	-	1 U	1 U	1 U	1 U	-	-	-	
Aroclor 1268	-	ug/L	-	-	-	-	-	-	-	-	-	1 U	1 U	1 U	1 U	-	-	-	
Volatile Organic Compounds																			
1,1,1-Trichloroethane	200	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	-	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	-	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	3.9 J	5 U	5 U	5 U	5 U
1,1-Dichloroethene	7	ug/L	5 U	5 U	5 U	12	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,3-Trichlorobenzene	-	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,4-Trichlorobenzene	70	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dibromo-3-chloropropane	0.2	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dibromoethane	0.05	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichlorobenzene	600	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,3-Dichlorobenzene	-	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene	75	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	-	ug/L	10 U	10 U	10 U	6.9 J+	10 U	10 U	10 U	26	10 U	15 J+	10 U						
2-Hexanone	-	ug/L	10 U																
4-Methyl-2-Pentanone	-	ug/L	10 U																
Acetone	-	ug/L	3.7 J	4 J+	10 U	15 J+	4.5 J	7.6 J	5.4 J	12	3.2 J	13 J+	10 U	4.6 J					
Benzene	5	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromochloromethane	-	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane ^b	80	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform ^b	80	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromomethane	-	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Disulfide	-	ug/L	5 U	5 U	5 U	5 U	3.2 J	5 U	5 U	7.9	5 U	2.3 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	5	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	100	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorodibromomethane ^b	80	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroethane	-	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform ^b	80	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloromethane	-	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	70	ug/L	5 U	210	4.6 J	1,600	5 U	10	1,400	15	5 U	11,000	5 UJ	5 U	5 U	5 U	5.1	5 U	1,600
cis-1,3-Dichloropropene	-	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cyclohexane	-	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dichlorodifluoromethane	-	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	700	ug/L																	

Table 3. Analytical Results, August 2018

Post-injection Monitoring

OMC Plant 2 Site (OU4) - Waukegan, IL

Notes:

J indicates the result is an estimated quantity.

U indicates the analyte was not detected above the reported quantitation

limit (QL).

III indicates the analyte was not detected above the QL and the QL

0.5 indicates the analyte was not detected above the approximate

approximate

^a Maximum Contaminant Level (MCL), EPA National Primary Drinking Water Regulation.

Water Regulations, EPA 816-F-09-004, May 2009

^b MCL is for Total Trihalomethanes, includes the in-

trihalomethanes (bromodichloromethane, chloroform, etc.)

chloroform, tribromomethane).

^c MCL is for Total Xylenes, includes m,p-Xylene

total Xylenes was considered an evaluation surrogate.

$\mu\text{g/L}$ = micrograms per liter
— no criteria

- = No criteria
Greyed cells indicate detection over the MCI

Greyed cells indicate detection over the MCP

Figures

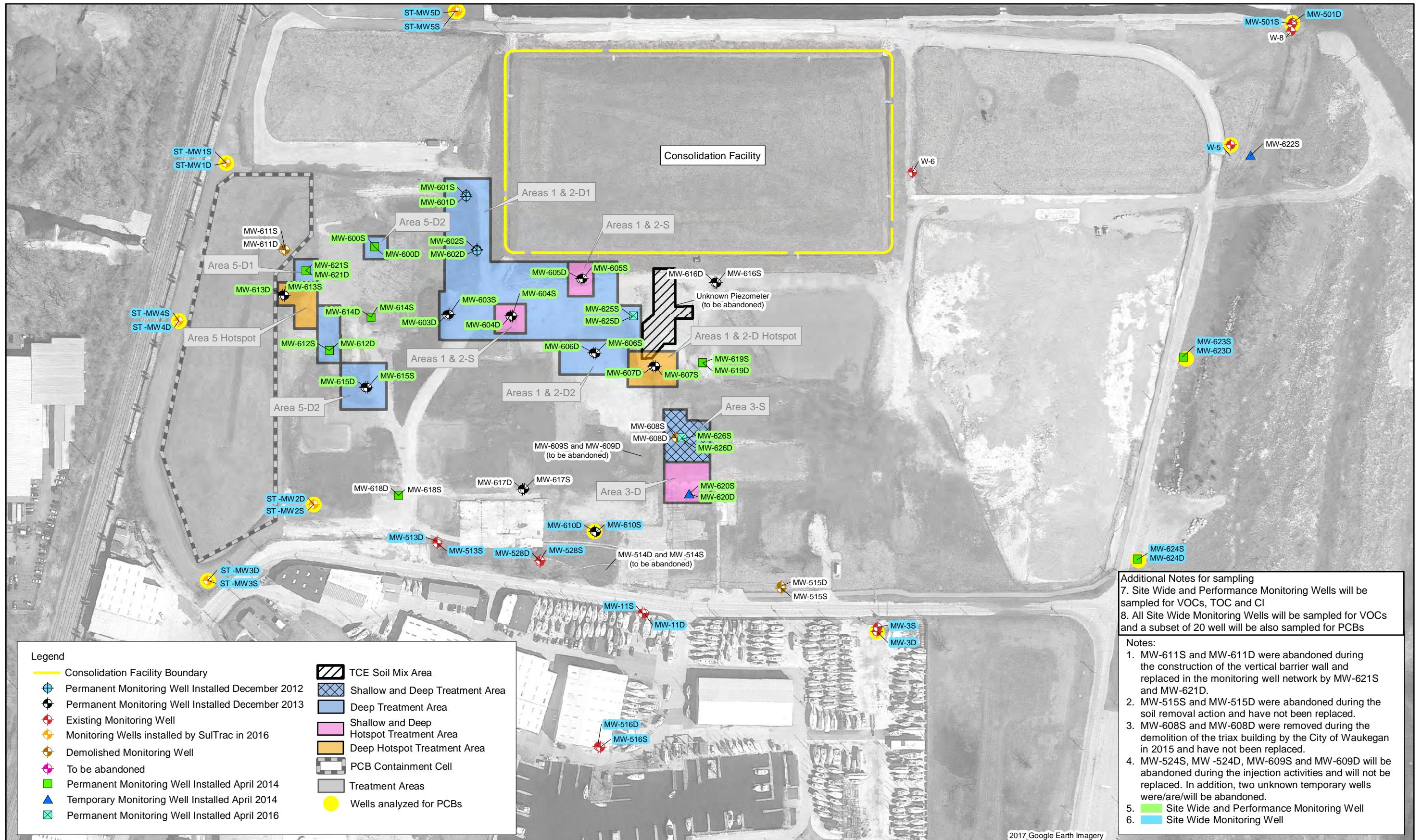


Figure 1
Monitoring Well and Groundwater Sampling Locations
OMC Plant 2
Waukegan, IL

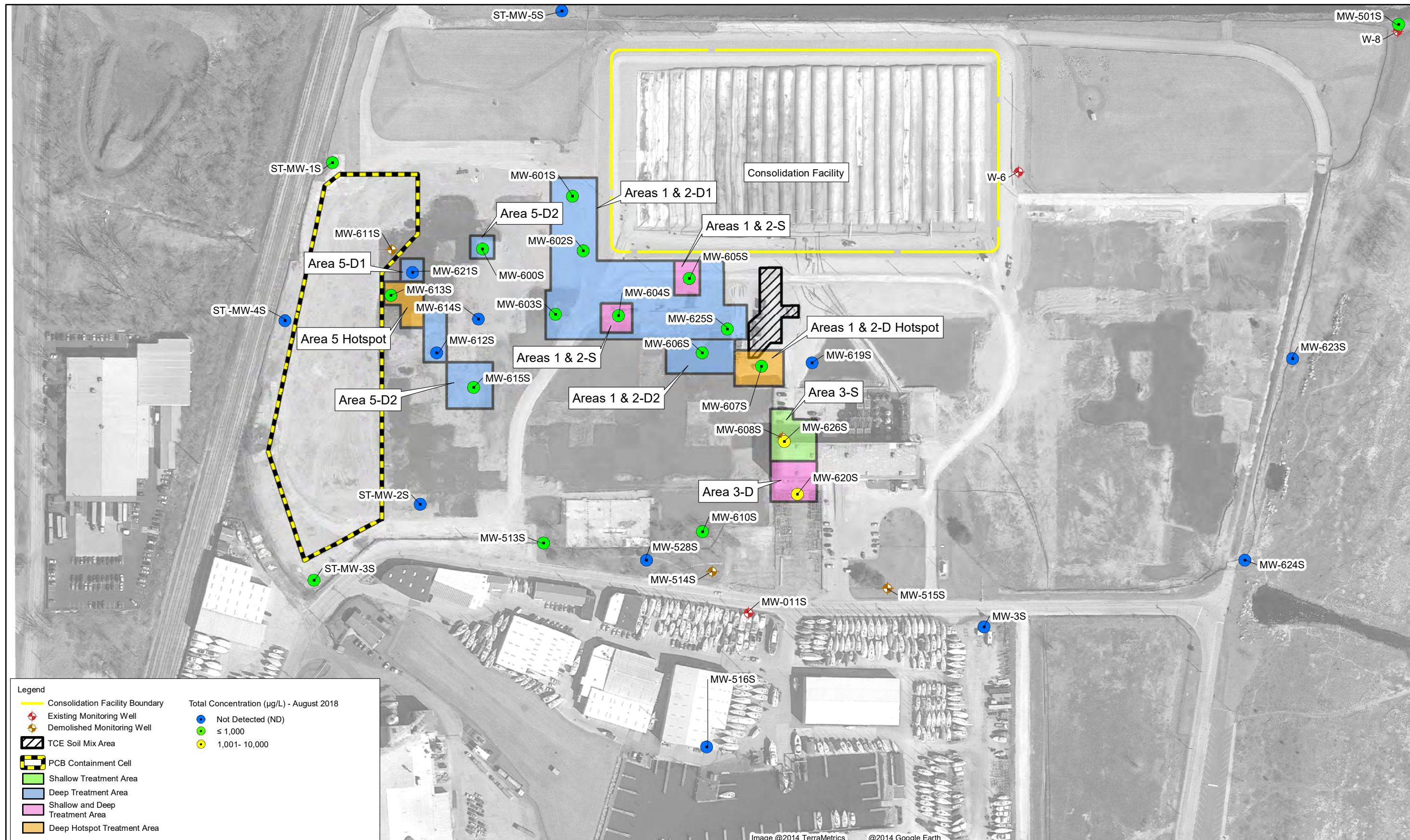


Figure 2a
Post-Injection Sampling Results (August 2018) - Shallow Wells
OMC Plant 2
Waukegan, IL

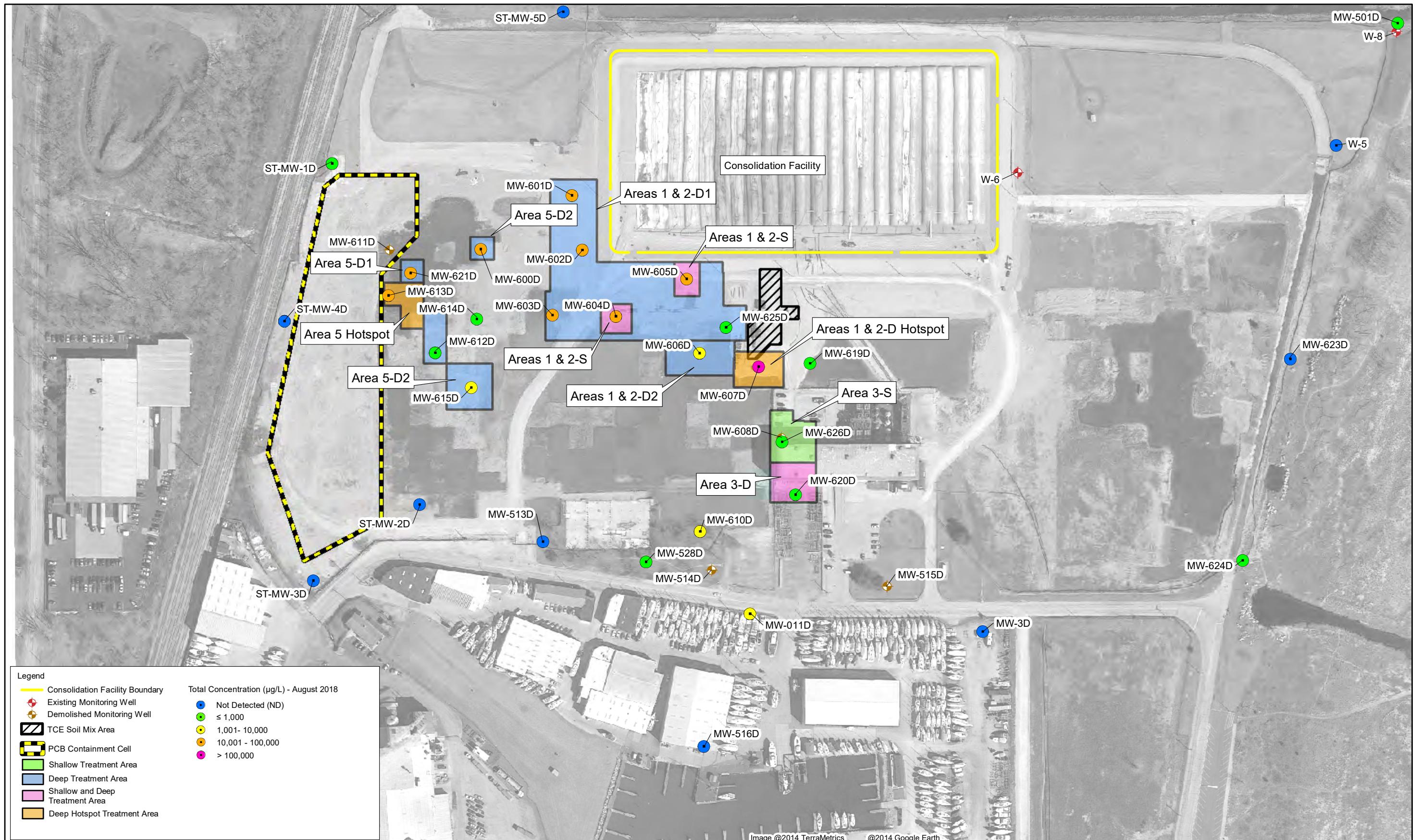


Figure 2b
Post-Injection Sampling Results (August 2018) - Deep Wells
OMC Plant 2
Waukegan, IL

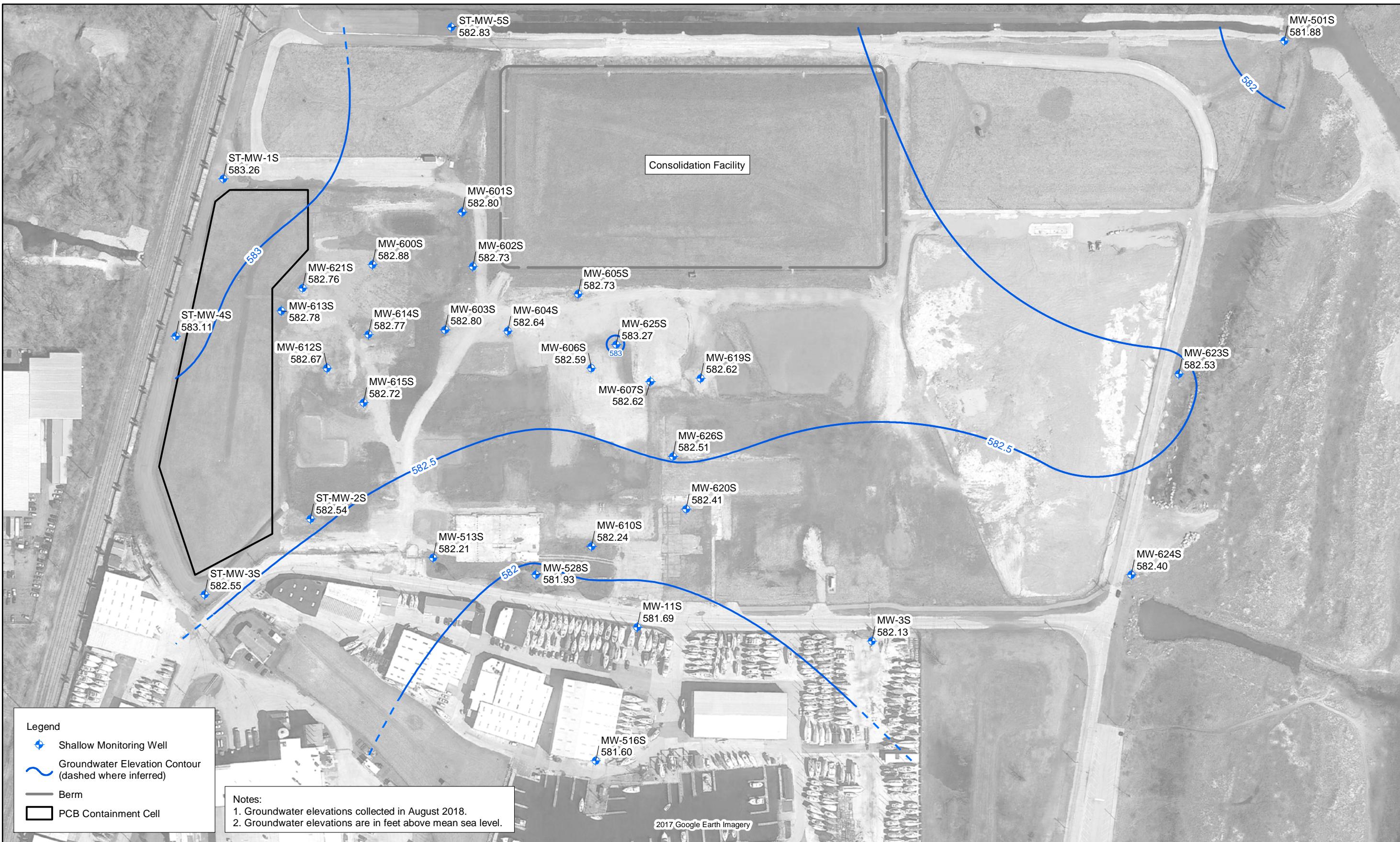
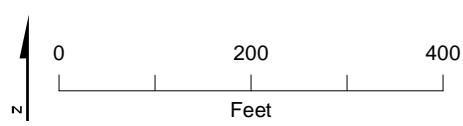


Figure 3A
August 2018 Shallow Potentiometric Surface Map
OMC Plant 2
Waukegan, IL



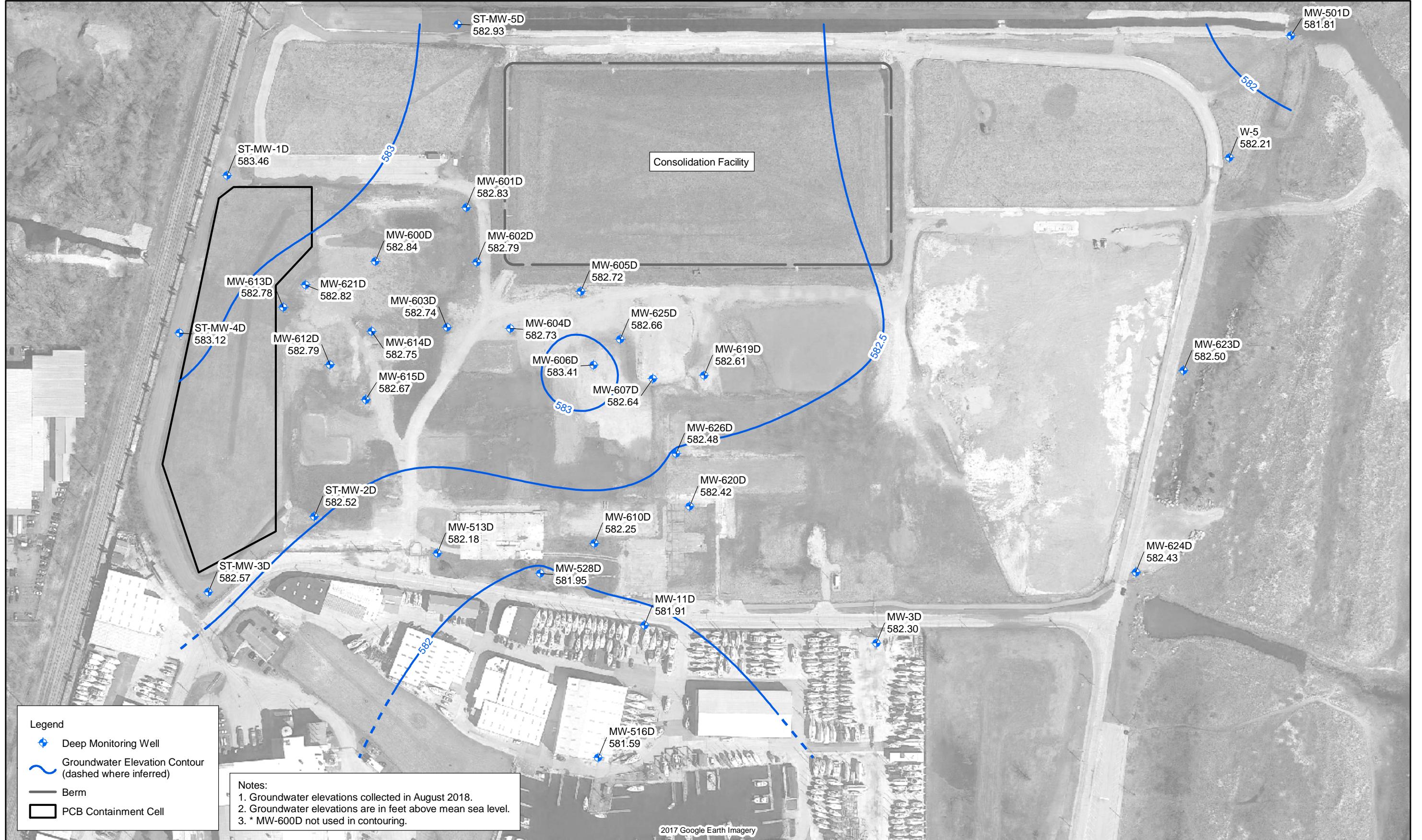


Figure 3B
August 2018 Deep Potentiometric Surface Map
OMC Plant 2
Waukegan, IL

Attachment 2

Field and Analytical Data

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-003S 6/8/2016	MW-003S 9/29/2016	MW-003S 12/21/2016	MW-003S 3/29/2018	MW-003S 8/21/2018	MW-003D 6/8/2016	MW-003D 9/29/2016	MW-003D 12/21/2016	MW-003D 3/29/2018	MW-003D 8/21/2018	MW-011S 4/24/2014	MW-011S 9/12/2014	MW-011S 12/4/2014	MW-011S 3/19/2015	MW-011S 6/23/2015	
Field Parameters																
Depth to Water	ft btoc	5.3	5.72	5.89	5.34	5.35	5.02	5.5	5.68	5.09	5.11	6.25	6.01	6.4	5.98	5.46
Dissolved Oxygen	mg/L	0.37	2.17	5.6	0.81	2.25	0	0.05	2.12	0.47	0.03	1.11	0.45	0.43	0.01	4.47
Oxidation-Reduction Potential	millivolts	88.6	202	33.4	98.6	132.5	-147.8	-152.3	-159.8	-139.5	-153.8	23.5	191.6	65.2	55.1	93.4
pH	pH units	6.8	6.53	6.92	6	6.65	7.48	7.47	7.6	7.51	7.51	7.11	7.07	7.61	7.04	7.63
Specific Conductance	mS/cm	0.542	0.697	0.727	0.578	0.289	6.688	8.37	8.654	6.385	6.183	2.362	1.495	0.662	0.682	0.953
Temperature	°C	12.74	18.22	11.03	6.56	19.8	12.04	13.6	11.05	9.37	13.98	5.92	15.38	9.04	2.45	14.31
Turbidity	NTU	3.8	4.6	30.6	0	0.7	9.5	0	2.5	5.1	0.7	4.3	8.7	5.8	0	2.3

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-011S 6/8/2016	MW-011S 9/28/2016	MW-011S 12/21/2016	MW-011S 3/29/2018	MW-011S 8/21/2018	MW-011D 4/24/2014	MW-011D 9/12/2014	MW-011D 12/4/2014	MW-011D 3/19/2015	MW-011D 6/23/2015	MW-011D 6/8/2016	MW-011D 9/28/2016	MW-011D 12/21/2016	MW-011D 3/29/2018	MW-011D 8/21/2018	
Field Parameters																
Depth to Water	ft btoc	5.47	6	3.42	5.68	5.5	6	5.73	6.18	5.74	5.3	5.24	5.78	6.2	5.46	5.21
Dissolved Oxygen	mg/L	0.54	0.39	1	0.26	0.44	0.59	0.1	0.36	0.13	0.37	0	0.06	5.22	0.39	0.03
Oxidation-Reduction Potential	millivolts	90.8	209.9	47.1	149.5	104.9	-154.3	-106.1	-162.9	-141.1	-111.6	-121.4	-123.3	-138.4	-110.9	-131.9
pH	pH units	7.23	7.05	7.4	7.1	6.99	7.13	6.92	7.3	7.48	7.01	6.97	6.87	7.06	6.93	7.04
Specific Conductance	mS/cm	2.58	2.261	1.303	2.005	1.252	2.22	2.414	2.464	2.297	2.078	1.934	2.802	2.154	1.84	1.312
Temperature	°C	13.46	19.1	8.99	5.29	21.17	9.91	13.21	11.58	8.54	11.03	11.5	14.41	12.05	9.13	14.82
Turbidity	NTU	0	1.1	7.5	0	6.5	54.4	0	5.3	0	8.2	20.4	4	8.6	8	9.9

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-501S 4/25/2014	MW-501S 9/8/2014	MW-501S 12/4/2014	MW-501S 3/19/2015	MW-501S 6/23/2015	MW-501S 6/8/2016	MW-501S 9/27/2016	MW-501S 12/22/2016	MW-501S 3/27/2018	MW-501S 8/20/2018	MW-501D 4/25/2014	MW-501D 9/8/2014	MW-501D 12/4/2014	MW-501D 3/19/2015	MW-501D 6/23/2015	
Field Parameters																
Depth to Water	ft btoc	5.65	4.7	4.55	4.1	4.07	4.25	4.41	4.75	3.82	3.95	5.6	4.65	4.58	4.2	4.25
Dissolved Oxygen	mg/L	1.78	0.19	0.41	0.58	3.3	0	0.24	1.14	0.2	0.11	0.3	0.18	0.29	0.17	0.4
Oxidation-Reduction Potential	millivolts	-83.1	26.7	-102.3	-42.1	-27.6	-30.1	-77.9	-22.4	32.9	-198.2	-151.1	-65.7	-165.8	-132.3	-134.9
pH	pH units	7.22	6.18	7.2	7.16	7.61	7.06	7.05	7.29	6.84	7.03	7.35	6.97	7.63	7.63	7.39
Specific Conductance	mS/cm	0.58	0.853	0.846	0.719	0.713	0.736	1.718	0.89	0.789	0.644	0.901	1.403	1.461	1.526	1.591
Temperature	°C	6.4	21.04	7.2	0.41	16.05	13.21	19.14	5.58	3.69	20.57	9.62	14.87	9.14	8.95	11.76
Turbidity	NTU	2	1	5.1	0.4	5.6	4.1	0	4.4	0.9	0.1	8.6	0	1	0	2.5

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-501D 6/8/2016	MW-501D 9/27/2016	MW-501D 12/22/2016	MW-501D 3/27/2018	MW-501D 8/20/2018	MW-513S 4/23/2014	MW-513S 9/11/2014	MW-513S 12/3/2014	MW-513S 3/17/2015	MW-513S 6/24/2015	MW-513S 6/7/2016	MW-513S 9/28/2016	MW-513S 12/21/2016	MW-513S 3/29/2018	MW-513S 8/21/2018	
Field Parameters																
Depth to Water	ft btoc	4.27	4.32	4.7	3.8	3.95	3.35	3.18	5.7	3.23	2.8	2.52	3.2	3.55	3.13	3.02
Dissolved Oxygen	mg/L	0.04	0.9	0.75	0.54	0.2	0.52	0.17	0.46	2.94	2.88	10.2	0.09	1.87	0.59	0.26
Oxidation-Reduction Potential	millivolts	-146.5	-180.8	-114.1	-123.8	-107.9	-2.4	41.4	9.3	133.4	-149.7	79.1	1.9	139.6	30.6	-44.6
pH	pH units	7.46	7.36	7.55	7.34	7.1	7.51	7.28	7.4	7.33	7.69	7.45	7.38	7.43	7.18	6.96
Specific Conductance	mS/cm	1.084	1.17	1.144	0.761	0.625	0.692	0.797	2.568	0.834	0.769	1.345	1.196	1.524	0.855	0.952
Temperature	°C	11.13	13.67	10.34	8.79	13.91	6.2	19.13	10.16	3.51	15.45	13.48	19.81	9.43	5.68	20.53
Turbidity	NTU	4.9	2.2	4.6	13.3	1.9	3.6	2.3	2.7	3.5	1.3	0	0	0.9	0	

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-513D 4/23/2014	MW-513D 9/11/2014	MW-513D 12/3/2014	MW-513D 3/17/2015	MW-513D 6/24/2015	MW-513D 6/7/2016	MW-513D 9/28/2016	MW-513D 12/21/2016	MW-513D 3/29/2018	MW-513D 8/21/2018	MW-514S 4/23/2014	MW-514S 9/11/2014	MW-514S 12/2/2014	MW-514S 3/18/2015	MW-514S 6/25/2015	
Field Parameters																
Depth to Water	ft btoc	3.43	3.25	3.84	3.21	2.9	2.68	3.32	3.6	3.17	3.11	3.45	3.25	3.7	3.34	2.9
Dissolved Oxygen	mg/L	0.03	0.28	0.34	0.29	0.36	0.01	0.17	1.71	0	0.24	11.31	8.07	11.96	12.35	11.56
Oxidation-Reduction Potential	millivolts	-74.8	82.1	-105	-51.7	-90.6	-77.1	-142.1	-110	-100.3	-112.1	54	119.4	193.9	69.1	99.9
pH	pH units	6.84	7	7.5	7.17	7.2	7.26	7.43	7.31	7.22	7.14	7.92	7.74	7.83	8.1	7.88
Specific Conductance	mS/cm	1.483	1.383	2.676	1.433	1.386	1.063	1.467	1.601	1.721	1.684	0.569	0.747	1.629	0.73	0.712
Temperature	°C	10.22	13.73	13.01	9.71	12.66	11.66	15.13	12.46	10.24	14.15	7.02	17.22	10.24	6.32	13.7
Turbidity	NTU	0.4	4.3	7.1	0	0.8	3.8	13.5	0.4	6	0.3	2.1	0	0	0	0

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-514D 4/23/2014	MW-514D 9/11/2014	MW-514D 12/2/2014	MW-514D 3/18/2015	MW-514D 6/25/2015	MW-515S 4/23/2014	MW-515D 4/23/2014	MW-516S 6/8/2016	MW-516S 9/28/2016	MW-516S 12/21/2016	MW-516S 3/29/2018	MW-516S 8/21/2018	MW-516D 6/8/2016	MW-516D 9/28/2016	MW-516D 12/21/2016	
Field Parameters																
Depth to Water	ft btoc	3.5	3.28	3.96	3.35	2.91	2	1.75	2.6	2.96	3.5	2.68	2.2	2.74	2.91	3.75
Dissolved Oxygen	mg/L	1.65	1.58	2.16	1.4	1.31	3.44	0.59	0.35	0.32	2.31	1.18	0.11	0	0.02	5.3
Oxidation-Reduction Potential	millivolts	-124	82.2	-99.6	-95.8	-97.2	69.3	-160.5	-57.2	-39	25.1	118.5	2.3	-132	-139.5	-176
pH	pH units	6.95	6.89	7.12	7.12	6.86	7.58	7.3	6.77	6.69	6.73	6.08	6.67	7.3	7.35	7.45
Specific Conductance	mS/cm	1.371	1.23	2.416	1.234	1.352	0.505	2.489	1.361	1.734	1.87	1.28	0.855	8.737	12.31	12.51
Temperature	°C	10.21	13.02	12.53	10.83	10.08	8.64	10.41	18.66	22.18	8.31	7.53	24.95	13.21	15.39	12.1
Turbidity	NTU	21.2	2.9	7.2	0	1.4	0	4	0	0	3.7	0	2.1	3.3	6.9	7.7

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-516D 3/29/2018	MW-516D 8/21/2018	MW-528S 4/23/2014	MW-528S 9/12/2014	MW-528S 12/4/2014	MW-528S 3/18/2015	MW-528S 6/24/2015	MW-528S 6/8/2016	MW-528S 9/28/2016	MW-528S 12/21/2016	MW-528S 3/29/2018	MW-528S 8/21/2018	MW-528D 4/23/2014	MW-528D 9/12/2014	MW-528D 12/4/2014	
Field Parameters																
Depth to Water	ft btoc	2.71	2.19	4.95	4.89	5.37	4.93	4.56	4.3	4.94	5.3	4.65	4.53	5.01	4.87	5.43
Dissolved Oxygen	mg/L	0.43	0.01	11.75	10.52	11.65	9.72	11.06	11.04	8.68	10.66	11.59	8.47	1.35	8.5	7.51
Oxidation-Reduction Potential	millivolts	-126.8	-143.9	63.2	136.4	74.7	-30.6	111.3	29	157.7	172.6	140.2	235.6	25.8	186.5	-51.3
pH	pH units	7.32	7.38	8.24	8.29	8.42	7.1	8.25	7.86	7.94	8.32	8.1	7.83	6.86	6.67	7.2
Specific Conductance	mS/cm	8.731	8.302	0.656	0.779	1.39	1.896	0.697	0.78	1.101	1.24	0.878	0.856	1.578	1.729	1.81
Temperature	°C	11.1	16.6	9.11	16.38	10.28	9.16	14.16	14.08	18.87	10.82	8.05	19.95	11.29	12.89	11.58
Turbidity	NTU	1.8	1.2	0.3	0	0	0	0	0	0	0	0	0	0.6	0	73.1

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millisiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

	Units	MW-528D 3/18/2015	MW-528D 6/24/2015	MW-528D 6/8/2016	MW-528D 9/28/2016	MW-528D 12/21/2016	MW-528D 3/29/2018	MW-528D 8/21/2018	MW-600S 4/23/2014	MW-600S 12/2/2014	MW-600S 3/17/2015	MW-600S 6/24/2015	MW-600S 6/6/2016	MW-600S 9/26/2016	MW-600S 12/19/2016	MW-600S 3/26/2018
Field Parameters																
Depth to Water	ft btoc	4.96	4.53	4.36	4.93	5.27	4.65	4.45	5	5.4	4.81	4.47	4.56	4.65	5.15	4.75
Dissolved Oxygen	mg/L	5.46	8.93	8.84	2.95	9.56	10.34	7.44	0.26	0.14	0.19	2.87	0.21	0.59	0.32	0.28
Oxidation-Reduction Potential	millivolts	63.7	1.1	-33.8	-17.5	7	-29.9	-50.3	-112.7	-152.5	-163.9	-176.4	-145.6	-144	-32.4	-100.3
pH	pH units	7.92	6.88	6.95	7.11	7.01	7.05	6.95	7.16	7.25	7.61	7.98	7.53	7.34	7.47	7.28
Specific Conductance	mS/cm	0.648	1.661	1.394	2.03	1.948	1.305	1.139	0.746	0.96	0.896	0.817	0.709	0.88	0.783	0.747
Temperature	°C	6.32	10.35	13.1	14.8	11.67	10.83	14.76	6.34	8.99	3.84	15.16	14.83	20.12	7.78	6
Turbidity	NTU	0	0.7	40	20.1	3.6	2.6	0.9	4	6.3	1.4	3	0	0	9.8	0

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millisiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-600S 8/23/2018	MW-600D 4/23/2014	MW-600D 12/2/2014	MW-600D 3/17/2015	MW-600D 6/24/2015	MW-600D 6/6/2016	MW-600D 9/26/2016	MW-600D 12/19/2016	MW-600D 3/26/2018	MW-600D 8/23/2018	MW-601S 4/22/2014	MW-601S 9/9/2014	MW-601S 12/2/2014	MW-601S 3/17/2015	MW-601S 6/23/2015	
Field Parameters																
Depth to Water	ft btoc	4.73	5.05	5.55	4.85	4.56	4.85	4.75	5.2	12.25	4.82	5.08	5.21	5.4	4.82	4.47
Dissolved Oxygen	mg/L	0.12	0.6	0.29	0.22	0.35	0	0.4	2.89	0	3.2	0.26	0.1	0.25	0.17	0.28
Oxidation-Reduction Potential	millivolts	-104.5	-218.1	-164.4	-132	-139.6	-92.3	-121.4	-142.1	-192.1	-282.1	-90.8	-120.1	-7.5	-107	-63.2
pH	pH units	7.11	7.08	7.14	7.17	7.1	7.1	7.14	7.34	7.53	7.64	7.22	7.07	7.17	7.53	7.04
Specific Conductance	mS/cm	0.662	1.963	1.97	2.723	2.917	2.439	2.63	2.625	2.444	1.75	0.537	1.11	1.19	1.044	1.411
Temperature	°C	19.95	9.43	11.03	10.22	12.91	13.55	17.15	10.87	10.22	14.14	7.16	19.99	7.65	1.81	18.91
Turbidity	NTU	0	0.4	2.8	5.1	1.7	13.8	0	1	0.9	3	1.9	4	13.1	0	0

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-601S 6/6/2016	MW-601S 9/26/2016	MW-601S 12/19/2016	MW-601S 3/26/2018	MW-601S 8/23/2018	MW-601D 4/22/2014	MW-601D 9/9/2014	MW-601D 12/2/2014	MW-601D 3/17/2015	MW-601D 6/23/2015	MW-601D 6/6/2016	MW-601D 9/26/2016	MW-601D 12/19/2016	MW-601D 3/26/2018	MW-601D 8/23/2018	
Field Parameters																
Depth to Water	ft btoc	4.59	4.71	5.13	4.67	4.7	5	5.14	5.35	4.75	4.45	4.53	4.62	5.05	4.58	4.52
Dissolved Oxygen	mg/L	0.31	0.02	0.74	0.08	0.09	0.59	0.08	0.33	0.24	0.21	0	0.11	1.2	0.49	2.75
Oxidation-Reduction Potential	millivolts	-82.8	-76.8	-20.2	27.5	-96.1	-112.6	-166.9	-120.1	-105.1	-125.6	-104	-128.1	-113.1	-110.7	-176.9
pH	pH units	7.34	7.08	7.44	7.29	6.96	6.86	6.95	7.04	6.88	7.1	7.35	7.49	7.38	7.27	6.57
Specific Conductance	mS/cm	0.744	0.84	5.23	0.632	0.835	2.688	3.021	2.747	3.263	5.731	2.648	2.752	2.352	2.325	2.229
Temperature	°C	16.37	20.59	7.7	6.09	19.97	10.11	14.42	11.7	8.76	12.9	13.06	15.68	12.06	8.87	15.1
Turbidity	NTU	19.9	0	1.8	0.4	0	2.4	0	3.4	4.8	0.4	11.5	0	4.2	5.7	0.9

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-602S 4/21/2014	MW-602S 9/9/2014	MW-602S 12/2/2014	MW-602S 3/17/2015	MW-602S 6/24/2015	MW-602S 6/6/2016	MW-602S 9/26/2016	MW-602S 12/19/2016	MW-602S 3/26/2018	MW-602S 8/23/2018	MW-602D 4/21/2014	MW-602D 9/9/2014	MW-602D 12/2/2014	MW-602D 3/17/2015	MW-602D 6/24/2015	
Field Parameters																
Depth to Water	ft btoc	4.25	4.5	4.7	4.2	3.92	3.9	4.2	4.54	4.17	4.15	4.7	4.88	5.09	4.49	4.26
Dissolved Oxygen	mg/L	0.61	0.24	0.23	0.44	0.09	0.23	0	1.35	0.58	0.07	0.35	0.17	0.22	0.2	0
Oxidation-Reduction Potential	millivolts	-132.7	-81.1	-135.8	-111.3	-154.8	-144.2	-143.1	-31.2	-77.1	-130.5	-116.8	-147.5	-177	-113.7	-126.5
pH	pH units	6.92	6.93	7.29	7.39	7.31	7.4	7.34	7.54	7.33	7.19	6.99	6.34	7.27	7.28	7.16
Specific Conductance	mS/cm	0.585	1.218	3.013	0.73	0.879	0.675	0.667	0.49	0.659	0.606	2.314	5.98	2.891	2.913	2.993
Temperature	°C	8.63	18.97	8.9	4.27	13.88	14.6	20	8.5	6.19	20.49	11.05	14.58	12.31	7.49	12.42
Turbidity	NTU	0.4	0	1	4.7	0	2.5	0	1.1	0.4	0	26.2	0	15.5	3.9	0

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-602D 6/6/2016	MW-602D 9/26/2016	MW-602D 12/19/2016	MW-602D 3/28/2018	MW-602D 8/23/2018	MW-603S 4/22/2014	MW-603S 9/9/2014	MW-603S 12/2/2014	MW-603S 3/17/2015	MW-603S 6/24/2015	MW-603S 6/7/2016	MW-603S 9/26/2016	MW-603S 12/19/2016	MW-603S 3/27/2018	MW-603S 8/23/2018	
Field Parameters																
Depth to Water	ft btoc	4.12	4.5	4.51	4.32	4.35	4.6	4.83	5.07	4.44	4.18	4.09	4.5	4.81	4.34	4.42
Dissolved Oxygen	mg/L	0.03	0.09	1.55	0.07	3.16	0.58	0.16	0.2	0.14	0.37	0.23	0.19	0.52	0.09	0.13
Oxidation-Reduction Potential	millivolts	-83.6	-116.3	-115.7	-72.9	-154.8	-105.9	-115.7	-132.4	-108	-127	-158.3	-115.6	-137.3	-84.7	-124.3
pH	pH units	7.04	7.21	7.24	7.09	7.49	7.02	6.78	6.97	7.18	6.79	7.2	7.08	7.23	6.87	6.89
Specific Conductance	mS/cm	2.827	3.294	2.619	7.089	2.792	0.485	0.6	0.848	0.92	0.998	0.906	0.687	0.612	1.04	0.846
Temperature	°C	14.07	15.58	11.97	10.17	15.23	6.59	20.5	6.85	2.73	13.82	14.93	20.77	6.76	6.1	19.97
Turbidity	NTU	62.9	6.9	9.1	0	4.5	0.7	3	11.6	6.3	0	0	0.9	2.8	5.3	0

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-603D 4/22/2014	MW-603D 9/9/2014	MW-603D 12/2/2014	MW-603D 3/17/2015	MW-603D 6/24/2015	MW-603D 6/7/2016	MW-603D 9/26/2016	MW-603D 12/19/2016	MW-603D 3/27/2018	MW-603D 8/23/2018	MW-604S 4/23/2014	MW-604S 9/9/2014	MW-604S 12/2/2014	MW-604S 3/17/2015	MW-604S 6/24/2015	
Field Parameters																
Depth to Water	ft btoc	4.3	4.76	6.35	4.13	3.78	4.68	4.9	5.7	4	4.1	4.46	4.4	4.62	4.16	3.83
Dissolved Oxygen	mg/L	0.58	0.01	0.21	5.11	0.25	0.01	0	0.68	0.41	3.86	0.04	0.21	0.37	0.02	0.44
Oxidation-Reduction Potential	millivolts	-136	-117.8	-145.2	-112	-99.2	-84.1	-104.9	-119.2	-103.8	-83.4	-112.7	-70.5	-139.6	-139.7	-142.6
pH	pH units	6.71	5	6.85	6.74	6.65	6.75	6.83	6.8	6.67	5.82	6.54	6.9	7.28	7.59	7.48
Specific Conductance	mS/cm	1.907	3.181	2.467	2.632	2.351	2.029	2.136	1.813	1.946	2.364	0.733	2.16	3.666	0.923	1.168
Temperature	°C	10.03	15.65	11.53	9.75	13.13	12.32	15.9	11.3	10.77	14.29	5.73	20.42	7.46	1.59	13.07
Turbidity	NTU	3.2	11	110.2	1561.9	0.3	14.7	3.6	90.6	13.8	0.7	5.9	0.4	0	0	0

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-604S 6/7/2016	MW-604S 9/27/2016	MW-604S 12/19/2016	MW-604S 3/28/2018	MW-604S 8/23/2018	MW-604D 4/23/2014	MW-604D 9/9/2014	MW-604D 12/2/2014	MW-604D 3/17/2015	MW-604D 6/24/2015	MW-604D 6/7/2016	MW-604D 9/27/2016	MW-604D 12/20/2016	MW-604D 3/28/2018	MW-604D 8/23/2018	
Field Parameters																
Depth to Water	ft btoc	3.75	4.33	4.55	4.15	4.21	4.5	4.6	5.21	4.3	4.1	4.23	4.3	4.49	4.07	4.1
Dissolved Oxygen	mg/L	0.22	0.2	0.35	0.68	0.26	0.95	0.13	0	0.14	0.22	0	0.75	0.21	0.05	0.12
Oxidation-Reduction Potential	millivolts	-132.7	-151.8	-64	-114.3	-147.6	-130.6	-180.2	-214.5	-223.8	-180	-239.3	-288.9	-250.1	-121	-251
pH	pH units	7.11	7.24	7.39	7.05	7.38	6.89	6.34	7.28	7.29	7.23	7.8	7.78	7.83	7.11	7.39
Specific Conductance	mS/cm	1.508	1.5	0.951	1.02	1.221	1.898	6.349	2.947	3.826	3.317	3.521	4.982	4.861	8.74	4.007
Temperature	°C	14.32	19.76	6.98	5.04	20.15	10.12	15.13	11.37	10.27	12.42	12.29	14.98	11.22	10.25	14.54
Turbidity	NTU	5.5	0	5.1	1.5	0	1.9	0	0	0	0	9.8	16.2	9.2	1.3	0

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millisiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-605S 4/22/2014	MW-605S 9/11/2014	MW-605S 12/3/2014	MW-605S 3/18/2015	MW-605S 6/24/2015	MW-605S 6/6/2016	MW-605S 9/27/2016	MW-605S 12/19/2016	MW-605S 3/28/2018	MW-605S 8/23/2018	MW-605D 4/22/2014	MW-605D 9/11/2014	MW-605D 12/3/2014	MW-605D 3/17/2015	MW-605D 6/24/2015	
Field Parameters																
Depth to Water	ft btoc	6.17	5.94	6.5	5.97	5.8	5.49	6.05	6.3	5.82	5.81	6.11	5.8	6.48	5.93	5.52
Dissolved Oxygen	mg/L	2.08	0.17	0.58	1.14	1.06	0.63	0.71	0.77	0.8	0.24	2.18	0.12	0.15	0.13	3.26
Oxidation-Reduction Potential	millivolts	-5.2	48.2	66.3	10.6	103.7	107.2	-22.7	-10.2	-9	-97.8	-125.3	-111.3	-125.1	-114.1	-141
pH	pH units	7.84	6.58	7.01	7.19	6.97	7.08	6.94	7.14	7.15	6.78	7.08	6.94	7.3	7.2	7.54
Specific Conductance	mS/cm	1.243	1.121	1.133	1.233	1.188	0.889	1.26	0.725	0.83	0.901	2.996	3.382	3.084	3.295	2.95
Temperature	°C	6.61	17.95	8.48	4.32	15.84	16.39	20.46	7.43	6.07	21.36	9.88	11.79	11.81	9.79	12.29
Turbidity	NTU	0	0	0	0	0.1	0	2	1.8	0	0	9.1	0	2.5	3.2	2.7

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-605D 6/6/2016	MW-605D 9/27/2016	MW-605D 12/19/2016	MW-605D 3/28/2018	MW-605D 8/23/2018	MW-606S 4/21/2014	MW-606S 9/9/2014	MW-606S 12/4/2014	MW-606S 3/19/2015	MW-606S 6/24/2015	MW-606S 6/7/2016	MW-606S 9/27/2016	MW-606S 12/20/2016	MW-606S 3/28/2018	MW-606S 8/22/2018	
Field Parameters																
Depth to Water	ft btoc	5.41	5.96	6.16	5.63	5.68	5.11	5.38	5.73	4.96	4.71	4.77	5.26	5.51	5.17	5.21
Dissolved Oxygen	mg/L	0.47	0.2	0.82	0.01	0.37	3.12	0.14	0.19	1.04	0.23	0	2.29	1.31	1.16	0.81
Oxidation-Reduction Potential	millivolts	-107.1	-127.3	-129.1	-120.5	-111.3	-119.5	14.9	-99.4	-103.1	-162.9	15	-67.7	-104.4	21.9	20.9
pH	pH units	7.03	7.13	7.13	7.07	7.6	13.3	7.35	7.67	7.28	11.64	11.23	10.87	11.38	10.72	8.71
Specific Conductance	mS/cm	2.867	3.801	2.505	2.929	3.152	10.42	0.939	2.143	0.948	3.509	2.304	4.234	2.827	1.444	1.328
Temperature	°C	13.54	15.51	11.91	10.66	14.38	5.95	20.07	8.11	2.26	15.52	12.61	20.89	8.39	5.88	21.13
Turbidity	NTU	2.1	5.6	6.2	2.3	1.5	0	5	2.8	8.5	0	1.8	0	17.2	4.7	2.1

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-606D 4/22/2014	MW-606D 3/19/2015	MW-606D 6/24/2015	MW-606D 6/7/2016	MW-606D 9/27/2016	MW-606D 12/20/2016	MW-606D 3/28/2018	MW-606D 8/22/2018	MW-607S 4/21/2014	MW-607S 9/10/2014	MW-607S 12/4/2014	MW-607S 3/18/2015	MW-607S 6/24/2015	MW-607S 6/7/2016	MW-607S 9/27/2016	
Field Parameters																
Depth to Water	ft btoc	5.25	6.1	4.71	5.39	5.3	6.3	5.2	4.35	5	4.8	5.49	4.97	4.54	4.52	5.05
Dissolved Oxygen	mg/L	1.51	1.71	0.31	0.01	0.39	0.19	0	0.23	1.47	4.1	3.4	13.78	1.11	0	5.12
Oxidation-Reduction Potential	millivolts	-118.5	48.5	39.6	-115.7	-218.4	-193.3	-265.4	-159.1	58.3	95.3	190.2	75.3	-31.9	-28.5	88.5
pH	pH units	7.18	7.87	7.68	8.32	8.18	8.5	8.27	8.35	7.66	7.77	7.7	8.51	7.77	8.14	7.86
Specific Conductance	mS/cm	2.125	5.277	4.645	4.822	6.152	6.529	4.126	6.549	0.776	1.292	1.645	0.565	0.526	0.455	0.749
Temperature	°C	9.99	9.16	10.64	11.87	15.86	12.01	11.08	15.01	8.18	20.26	4.51	5.47	19.23	16.35	20.74
Turbidity	NTU	1.8	37.3	0	4.4	4	5.7	4	1880.2	0.8	0	0	0	0	1.4	2.4

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millisiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-607S 12/20/2016	MW-607S 3/28/2018	MW-607S 8/22/2018	MW-607D 4/21/2014	MW-607D 6/25/2015	MW-607D 6/7/2016	MW-607D 9/27/2016	MW-607D 12/20/2016	MW-607D 3/28/2018	MW-607D 8/22/2018	MW-608S 4/23/2014	MW-608S 9/11/2014	MW-608S 12/3/2014	MW-608D 4/23/2014	MW-609S 4/22/2014	
Field Parameters																
Depth to Water	ft btoc	5.3	4.87	4.9	4.95	4.43	5.52	4.9	5.07	4.68	4.64	8.99	7.79	8.48	7.71	2.96
Dissolved Oxygen	mg/L	2	4	0.22	0.5	0.08	0.03	0.08	1.35	0.03	0.18	0.02	0.32	0.53	0.62	1.37
Oxidation-Reduction Potential	millivolts	37.6	42.7	-121.9	-136.3	36.2	50.2	73.9	35.9	-7.3	-33.8	-8.1	-208.1	186.7	-172.8	-101.2
pH	pH units	8.27	7.92	7.58	7.09	7.25	7.2	7.23	7.36	7.14	6.9	6.86	6.88	7.25	7.45	8.46
Specific Conductance	mS/cm	0.588	0.386	0.919	1.687	5.718	2.8	3.509	4.066	2.449	2.86	0.718	0.927	2.568	1.002	0.727
Temperature	°C	3.29	4.78	22.96	10.88	12.3	12.34	15.24	10.77	10.66	14.48	5.42	14.45	10.61	9.87	7.19
Turbidity	NTU	0	0.2	0	16.1	71.3	0.7	0	9.3	0	0	5.5	0	0	17	3

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-609S 9/8/2014	MW-609S 12/3/2014	MW-609S 3/19/2015	MW-609S 6/22/2015	MW-609D 4/22/2014	MW-609D 9/8/2014	MW-609D 12/3/2014	MW-609D 3/16/2015	MW-609D 6/22/2015	MW-610S 4/24/2014	MW-610S 9/9/2014	MW-610S 12/1/2014	MW-610S 3/16/2015	MW-610S 6/22/2015	MW-610S 6/8/2016	
Field Parameters																
Depth to Water	ft btoc	3.05	3.22	2.35	1.1	1.77	1.92	2.15	0.62	1.13	7.4	7.59	7.61	7.4	6.79	6.64
Dissolved Oxygen	mg/L	0.24	0.12	0.17	1.28	1.3	0.17	0.36	0.11	3.05	11.37	9.26	10.76	1	11.06	10.91
Oxidation-Reduction Potential	millivolts	76	-42.4	25.7	93	-160.1	-116.6	-178.4	-118.1	-147.6	15.5	161.4	106.5	97.6	255.8	191.2
pH	pH units	7.46	7.98	8.01	7.82	7.45	5.15	7.39	7.42	7.6	7.34	5.79	7.56	7.66	7.56	7.46
Specific Conductance	mS/cm	0.546	0.643	0.803	0.6	1.342	1.185	1.18	1.352	1.362	0.784	1.523	1.553	1.655	0.793	0.737
Temperature	°C	20.09	6.15	5.64	16.27	10.14	13.55	11.42	11.26	12.92	6.51	17.43	9.14	6.38	12.75	14.08
Turbidity	NTU	0.1	1.6	14	3.6	7.1	0.1	1	8.2	2.2	3.9	0	1.2	7.8	7.8	0

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-610S 9/28/2016	MW-610S 12/20/2016	MW-610S 3/29/2018	MW-610S 8/21/2018	MW-610D 4/24/2014	MW-610D 9/9/2014	MW-610D 12/1/2014	MW-610D 3/16/2015	MW-610D 6/22/2015	MW-610D 6/8/2016	MW-610D 9/28/2016	MW-610D 12/20/2016	MW-610D 3/29/2018	MW-610D 8/21/2018	MW-611S 4/25/2014	
Field Parameters																
Depth to Water	ft btoc	7.37	7.6	7.12	7.02	7.39	7.57	7.84	7.27	6.75	6.83	7.25	7.55	7.01	6.94	5.85
Dissolved Oxygen	mg/L	9.27	11.77	12.6	9.4	0.35	0.27	0.37	0.46	0.01	0.52	0.19	0.51	0	0.06	0.21
Oxidation-Reduction Potential	millivolts	185.3	109.3	59.1	193.6	-112.3	64	-155.1	-105.6	-123.1	-129.7	-159.6	-126.4	-145.1	-134.9	-123.6
pH	pH units	7.62	7.71	7.59	7.44	8.14	6.82	7.24	7.35	7.29	7.15	7.3	7.36	7.31	7.28	12.6
Specific Conductance	mS/cm	1.637	2.566	1.316	0.755	1.719	3.485	2.299	1.824	1.767	1.8	2.233	2.529	1.358	1.284	8.032
Temperature	°C	17.7	9.71	6.46	18.36	10.53	13.6	10.69	9.07	13.56	12.63	13.53	11.65	11.29	14.59	6.98
Turbidity	NTU	0	16.6	0	0	15.1	0	1	0	0	4.6	3.2	0	7	1.7	0

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-611D 4/25/2014	MW-612S 4/23/2014	MW-612S 9/11/2014	MW-612S 12/3/2014	MW-612S 3/19/2015	MW-612S 6/23/2015	MW-612S 6/6/2016	MW-612S 9/26/2016	MW-612S 12/20/2016	MW-612S 3/27/2018	MW-612S 8/22/2018	MW-612D 4/23/2014	MW-612D 9/11/2014	MW-612D 12/3/2014	MW-612D 3/18/2015	
Field Parameters																
Depth to Water	ft btoc	5.75	4.7	4.18	5.25	4.66	4.14	4.2	4.51	5.02	4.65	4.76	4.8	4.3	5.49	4.57
Dissolved Oxygen	mg/L	0.59	0.35	0.2	0.33	0.14	0.38	0.04	0.3	0.9	0.09	0.13	0.63	0.22	0	1.53
Oxidation-Reduction Potential	millivolts	-158.2	-156.7	-112.1	-139	-166	-113	-123.8	-142.7	-114.7	-115.5	-134	-213.3	-146.1	-224.8	-195
pH	pH units	6.59	7.23	7.25	7.4	7.69	7.31	7.22	7.1	7.59	7.13	6.76	7.15	8.01	8.69	7.15
Specific Conductance	mS/cm	2.101	0.904	0.828	2.282	0.782	0.734	0.722	0.988	1.352	1.882	1.592	2.454	6.209	11.64	5.316
Temperature	°C	10.94	7.38	19.64	7.43	3.6	15.62	15.26	20.56	7.04	5.7	21.49	9.94	14.61	11.65	9.37
Turbidity	NTU	4.2	0	8.5	0	0	2.7	5.5	3	9.1	6.5	1.5	0	3.1	11.4	12

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-612D 6/23/2015	MW-612D 6/6/2016	MW-612D 9/26/2016	MW-612D 12/20/2016	MW-612D 3/27/2018	MW-612D 8/22/2018	MW-613S 4/24/2014	MW-613S 9/11/2014	MW-613S 12/3/2014	MW-613S 3/18/2015	MW-613S 6/23/2015	MW-613S 6/6/2016	MW-613S 9/26/2016	MW-613S 12/20/2016	MW-613S 3/27/2018	
Field Parameters																
Depth to Water	ft btoc	4.01	4.5	4.4	4.86	4.65	4.45	5.9	5.5	6.61	6.85	5.35	5.97	5.66	6.31	5.67
Dissolved Oxygen	mg/L	3.16	0	0.02	0.69	0.37	2.34		0.24	0.39	0.2	0.33	0.02	0.47	17.9	0.23
Oxidation-Reduction Potential	millivolts	-126	-118.9	-154.8	-187.6	-229.6	-164.6	-97.1	-122	-184.1	-44.6	-174.2	-83	-83.3	37.4	-64
pH	pH units	7.97	6.99	7.36	7.68	8	6.35	11.45	12.15	11.85	11.79	11.47	10.2	9.02	9.55	7.69
Specific Conductance	mS/cm	5.689	4.838	5.27	6.307	4.156	3.883	4.452	3.324	2.857	2.814	2.582	1.177	1.599	4.735	1.892
Temperature	°C	13.11	12.08	16.49	11.95	10.26	15.21	5.16	17.15	8.29	3.15	12.02	13.39	19.62	9.78	7.05
Turbidity	NTU	0.2	-2.4	0	9.8	13.6	7.6	0	0	0	0	0	0	0	1	0

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millisiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-613S 8/22/2018	MW-613D 4/24/2014	MW-613D 9/11/2014	MW-613D 12/3/2014	MW-613D 3/18/2015	MW-613D 6/23/2015	MW-613D 6/6/2016	MW-613D 9/26/2016	MW-613D 12/20/2016	MW-613D 3/27/2018	MW-613D 8/22/2018	MW-614S 4/24/2014	MW-614S 9/10/2014	MW-614S 12/3/2014	MW-614S 3/18/2015	
Field Parameters																
Depth to Water	ft btoc	5.82	5.82	5.44	6.86	5.75	5.29	6	5.55	5.99	5.6	5.71	4.65	4.36	5.2	4.52
Dissolved Oxygen	mg/L	0.15	0.97	0.13	0.17	0.18	0	0	0.03	0.24	0	4.09	1.14	0.13	0.24	0.02
Oxidation-Reduction Potential	millivolts	-164.5	-122.1	-119.2	141.9	-144.1	-157.7	-102.8	-129.4	-178.8	-168.4	-139	-118.4	-88.1	-135.2	-135.1
pH	pH units	7.47	6.72	7.26	7.49	7.38	7.31	6.95	7.32	7.72	7.21	6.98	6.55	6.64	7.07	6.89
Specific Conductance	mS/cm	1.961	1.978	3.741	3.6	3.756	3.788	3.548	4	4.701	3.519	3.339	1.251	1.82	4.151	1.347
Temperature	°C	19.1	9.38	13.14	10.69	10.14	13.44	11.84	15.27	11.58	11.37	14.84	6.96	17.13	9.43	4.32
Turbidity	NTU	0	0	8.1	9.8	2.7	3.5	-0.3	6.7	7.6	0	3.6	0	0	5.8	0

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-614S 6/23/2015	MW-614S 6/7/2016	MW-614S 9/26/2016	MW-614S 12/19/2016	MW-614S 3/27/2018	MW-614S 8/22/2018	MW-614D 4/24/2014	MW-614D 9/10/2014	MW-614D 12/3/2014	MW-614D 3/18/2015	MW-614D 6/23/2015	MW-614D 6/7/2016	MW-614D 9/26/2016	MW-614D 12/19/2016	MW-614D 3/27/2018	
Field Parameters																
Depth to Water	ft btoc	4.08	4.15	4.72	4.9	4.35	4.52	4.75	5.06	12.49	4.6	4.12	15.92	5.03	4.9	4.2
Dissolved Oxygen	mg/L	2.83	0.03	0.27	0.3	0.43	0.14		0.8	8.74	0.28	0.29	0	0.21	0.86	0
Oxidation-Reduction Potential	millivolts	-98.3	-112.4	-138.5	-42.6	-116	-104.9	-81.2	-112.5	-120.7	-67.1	-18.8	-92.3	-110.1	-66	-79.9
pH	pH units	7.49	7.05	6.87	7.13	7.05	6.81	7.96	7	7.72	7.12	7.1	7.35	7.21	7.57	7.6
Specific Conductance	mS/cm	1.246	1.136	1.094	0.775	0.878	0.955	2.772	7.484	7.751	6.999	6.589	6.403	5.071	4.878	5.909
Temperature	°C	15.29	13.17	20.2	8.13	6.71	20.04	10.72	15.18	8.82	12.71	14.16	11.56	19.29	9.19	11.4
Turbidity	NTU	3.1	0	0	7.1	1.4	0	4.8	6.7	38.9	0	9.6	12.7	0	3.8	4.4

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-614D 8/22/2018	MW-615S 4/24/2014	MW-615S 9/11/2014	MW-615S 12/3/2014	MW-615S 3/18/2015	MW-615S 6/24/2015	MW-615S 6/7/2016	MW-615S 9/26/2016	MW-615S 12/20/2016	MW-615S 3/27/2018	MW-615S 8/22/2018	MW-615D 4/24/2014	MW-615D 3/18/2015	MW-615D 6/24/2015	MW-615D 6/7/2016	
Field Parameters																
Depth to Water	ft btoc	4.5	6.3	5.9	6.79	6.2	5.73	5.59	5.93	6.4	5.94	6.05	5.87	4.53	5.43	5.88
Dissolved Oxygen	mg/L	4.02	0.77	0.22	0.25	2.42	0.47	0.13	0.02	0.41	0.28	0.12	0.45	0.18	3.08	0
Oxidation-Reduction Potential	millivolts	-146.7	-176	-94.1	-127.4	-143.7	35.5	-97.1	-101.2	-155.8	-97.9	-180.9	-159	172.6	-3.2	16.8
pH	pH units	7.33	8.28	7.27	7.88	7.42	7.84	7.44	7.47	7.44	6.9	7.09	7.11	8.63	8.95	7.98
Specific Conductance	mS/cm	4.321	0.499	0.55	1.132	0.569	0.61	0.85	1.019	1.248	1.095	0.872	2.001	5.332	4.988	4.51
Temperature	°C	17.84	7.38	18.68	9.46	5.15	15.06	14.85	20.76	8.82	6.41	21.16	10.45	8.99	13.29	11.24
Turbidity	NTU	8.2	5.9	0	0	0	3	3.1	0	4.9	0	0	8.9	0.1	0.6	3.3

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-615D 9/26/2016	MW-615D 12/20/2016	MW-615D 3/27/2018	MW-615D 8/22/2018	MW-616S 4/24/2014	MW-616S 9/9/2014	MW-616S 12/1/2014	MW-616S 3/16/2015	MW-616S 6/22/2015	MW-616D 4/24/2014	MW-616D 9/9/2014	MW-616D 12/1/2014	MW-616D 3/16/2015	MW-616D 6/22/2015	MW-617S 4/22/2014	
Field Parameters																
Depth to Water	ft btoc	5.62	5.92	5.5	5.65	5.39	5.51	5.6	5.13	4.75	5.38	5.45	6.19	5.15	4.95	6.32
Dissolved Oxygen	mg/L	0.06	1.39	0.49	4.59	0.3	0.17	0.79	0.38	0.91	0.15	0.33	0.24	0.03	1.18	
Oxidation-Reduction Potential	millivolts	-92.2	-114.8	-70.6	-223.9	26	77.7	-130.9	24.3	49.6	-135.9	-98	-151.4	-97.2	-149.2	-105
pH	pH units	7.81	7.64	7.7	9.16	8.74	7.24	8.01	7.5	7.61	6.99	4.36	7.43	7.34	7.34	6.96
Specific Conductance	mS/cm	4.555	6.051	3.494	3.304	0.787	1.735	0.796	1.405	0.58	1.879	3.547	1.678	1.734	1.686	0.973
Temperature	°C	15.8	10.93	10.42	16.5	6.01	21.83	5.63	3.08	16.27	9.12	15.15	9.98	11.1	13.66	4.64
Turbidity	NTU	0	9.9	9.6	4.9	0	0	8.9	0	0	0	0	0.7	0	0.5	0.6

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-617S 9/8/2014	MW-617S 12/1/2014	MW-617S 3/16/2015	MW-617S 6/22/2015	MW-617D 4/22/2014	MW-617D 9/8/2014	MW-617D 12/1/2014	MW-617D 3/16/2015	MW-617D 6/22/2015	MW-618S 4/24/2014	MW-618S 9/10/2014	MW-618S 12/1/2014	MW-618S 3/16/2015	MW-618S 6/22/2015	MW-618D 4/24/2014	
Field Parameters																
Depth to Water	ft btoc	6.67	6.78	6.4	5.86	5.95	6.29	7.05	5.99	5.45	5.5	5.08	5.79	5.2	4.83	5.45
Dissolved Oxygen	mg/L	0.4	0.01	0.83	0.26	1.36	0.28	0.21	0.35	0.28	0.42	0.27	0.27	0.43	2.82	0.89
Oxidation-Reduction Potential	millivolts	-73.1	-86.7	-75	-75	-145.3	-116.9	-148.1	-100.7	-132	-154.4	-94.3	-140.7	-85.6	-120.3	-174.6
pH	pH units	7.07	6.85	7.14	7.12	7.33	5.85	7.35	7.32	7.3	7.39	7.07	7.12	7.36	7.42	7.35
Specific Conductance	mS/cm	0.753	0.798	2.119	1.359	2	1.856	1.853	1.967	3.746	0.652	0.8	2.128	1.135	0.858	1.838
Temperature	°C	22.14	5.63	5.25	17.44	10.04	15.28	11.11	9.74	14.07	6.7	21.35	6.9	3.58	15.96	10.1
Turbidity	NTU	0	3.3	10.2	0	6	0	0.6	0	0.9	2.3	0.1	2.4	0	0.3	9.3

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-618D 9/10/2014	MW-618D 12/1/2014	MW-618D 3/16/2015	MW-618D 6/22/2015	MW-619S 4/21/2014	MW-619S 9/10/2014	MW-619S 12/3/2014	MW-619S 3/19/2015	MW-619S 6/25/2015	MW-619S 6/7/2016	MW-619S 9/26/2016	MW-619S 12/20/2016	MW-619S 3/28/2018	MW-619S 8/22/2018	MW-619D 4/21/2014	
Field Parameters																
Depth to Water	ft btoc	5.04	7.42	5.16	4.75	5.52	5.45	5.85	5.48	5	5.15	5.65	5.87	5.47	5.45	5.01
Dissolved Oxygen	mg/L	0.18	0.21	1.38	0.38	4.73	0.24	0.36	0.19	0.39	0.33	0.3	0.86	0.28	0.22	2.55
Oxidation-Reduction Potential	millivolts	-130.4	-148.3	-99.9	-108	-188.3	-117.6	-166	-176.3	-155.3	-99.4	-160.1	-145.5	-105.3	-38.5	-171.2
pH	pH units	6.07	7.33	7.44	7.3	7.81	7.41	7.81	7.89	7.69	7.4	7.62	7.85	7.69	7.58	7.39
Specific Conductance	mS/cm	1.762	2.401	1.818	1.785	1.013	1.03	3.01	0.796	3.036	0.82	1.048	1.403	0.663	1.387	1.458
Temperature	°C	16.75	9.96	11.66	14.08	6.22	20.04	7.94	2.16	14.09	13.19	20.29	7.97	6.16	20.3	10.85
Turbidity	NTU	0	0	0	3.8	0	0	0	0	0	0	0	14.7	0	0	3.9

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-619D 9/10/2014	MW-619D 12/3/2014	MW-619D 3/19/2015	MW-619D 6/25/2015	MW-619D 6/7/2016	MW-619D 9/26/2016	MW-619D 12/20/2016	MW-619D 3/28/2018	MW-619D 8/22/2018	MW-620S 4/25/2014	MW-620S 9/11/2014	MW-620S 12/3/2014	MW-620S 3/19/2015	MW-620S 6/25/2015	MW-620S 6/7/2016	
Field Parameters																
Depth to Water	ft btoc	5.46	6.5	5.61	5.09	5.68	5.7	6	5.5	5.5	3.1	4.6	3.1	4.75	4.34	4.2
Dissolved Oxygen	mg/L	0.2	0.12	0.16	3.11	0.21	0.01	0.26	0	0.16	0.73	0.13	0.13	0.23	0.44	0.39
Oxidation-Reduction Potential	millivolts	-210.5	-206.9	-263.7	-180.3	-169.6	-187.5	-154.1	-257.9	-305.7	-109.8	-247.3	-29.2	-44.2	-45.5	67.4
pH	pH units	7.13	8.11	8.04	8.29	7.86	7.56	7.98	8.09	7.99	7.01	6.67	7.35	7.33	7.25	7.16
Specific Conductance	mS/cm	2.721	3.885	3.176	3.099	2.714	3.437	3.787	2.463	2.465	0.855	1.003	1.016	0.924	0.832	1.105
Temperature	°C	15.49	11.42	7.18	11.63	11.92	15.79	10.74	10.91	14.41	10.07	19.7	10.6	5.55	14.66	14.24
Turbidity	NTU	0	5.4	4.3	0.3	0	2	0	0.7	0.8	5	0	0.4	1.3	0	0

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-620S 9/27/2016	MW-620S 12/20/2016	MW-620S 3/29/2018	MW-620S 8/22/2018	MW-620D 4/25/2014	MW-620D 9/11/2014	MW-620D 12/3/2014	MW-620D 3/19/2015	MW-620D 6/25/2015	MW-620D 6/7/2016	MW-620D 9/27/2016	MW-620D 12/20/2016	MW-620D 3/29/2018	MW-620D 8/22/2018	MW-621S 4/24/2014	
Field Parameters																
Depth to Water	ft btoc	2.5	2.72	4.56	4.55	3.1	4.25	4.72	4.31	4.89	3.89	2.1	1.9	4.18	4.14	6.15
Dissolved Oxygen	mg/L	0.31	1.65	0.09	1.52	0.4	0.11	0.25	0.04	0.28	0.25	0.09	0.48	0.39	0.16	0.61
Oxidation-Reduction Potential	millivolts	-86.3	-56.9	40	-222.3	-137.4	-122.3	-273.4	-240.9	-267	-170.1	-118.7	-98.6	-169.8	-285.1	-257.1
pH	pH units	7.43	7.59	7.28	7.01	7.36	7.25	7.58	7.5	7.78	7.71	6.89	7.26	7.43	6.51	12.95
Specific Conductance	mS/cm	1.551	1.975	1.212	2.335	0.767	1.6	2.62	2.991	2.342	2.18	2.155	2.291	2.042	2.437	5.21
Temperature	°C	20.18	5.95	6.24	20.61	12.27	13.79	14.42	10.44	13.79	13.42	15.6	11.94	12.08	14.65	5.5
Turbidity	NTU	0	17.3	0	0	6.8	10.3	0.7	1	-1.4	3.7	9.8	6.8	0	33.5	150.1

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millisiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-621S 9/10/2014	MW-621S 12/2/2014	MW-621S 3/17/2015	MW-621S 6/23/2015	MW-621S 6/7/2016	MW-621S 9/26/2016	MW-621S 12/20/2016	MW-621S 3/27/2018	MW-621S 8/22/2018	MW-621D 4/24/2014	MW-621D 9/10/2014	MW-621D 12/2/2014	MW-621D 3/17/2015	MW-621D 6/23/2015	MW-621D 6/7/2016	
Field Parameters																
Depth to Water	ft btoc	5.92	6.63	5.96	5.57	5.95	5.89	6.37	5.9	6.11	6.17	5.7	7.31	6.05	5.62	6.49
Dissolved Oxygen	mg/L	0.26	0.14	0.01	0.04	0.25	0.74	5	0	0.14	0.43	0.26	0.3	0.14	0.3	0
Oxidation-Reduction Potential	millivolts	-106.7	-196.3	-124	-212.4	-255.4	-148.9	-58	-108.1	-143.6	-162.7	-110.1	-201.9	-211.5	-175.8	-94.4
pH	pH units	7	10.1	7.41	8.28	11.92	11.04	10.19	7.24	7.1	6.85	7.42	7.68	7.69	7.78	7.35
Specific Conductance	mS/cm	1.745	6.519	1.616	1.576	3.1	2.221	2.307	1.947	1.662	1.685	6.632	5.842	6.008	5.886	4.605
Temperature	°C	17.9	9.05	2.58	14.77	12.74	19.87	9.67	6.63	19.49	10.08	14.86	12.01	10.96	11.01	12.16
Turbidity	NTU	0	0.4	0	0	0	0	2	0	0	7	0.7	15.7	1.5	10	6.4

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-621D 9/26/2016	MW-621D 12/20/2016	MW-621D 3/27/2018	MW-621D 8/22/2018	MW-622S 4/25/2014	MW-622S 9/8/2014	MW-622S 12/4/2014	MW-622S 3/19/2015	MW-622S 6/25/2015	MW-623S 4/25/2014	MW-623S 9/8/2014	MW-623S 12/4/2014	MW-623S 3/18/2015	MW-623S 6/23/2015	MW-623S 6/8/2016	
Field Parameters																
Depth to Water	ft btoc	5.93	6.4	5.86	6.05	5.26	4.6	4.54	4	4	4.93	4.62	4.72	4.15	3.85	4.08
Dissolved Oxygen	mg/L	0.02	0.27	0.31	0	1.69	0.06	0.42	3.54	0.56	0.23	0.25	0.31	0.2	0.47	0
Oxidation-Reduction Potential	millivolts	-121.2	-100.4	-138.8	-278.6	-114.9	-100.1	-178.2	-137.7	-148.4	-179.8	-90.9	-100.9	-208.7	-189.5	-143.3
pH	pH units	7.29	7.7	7.77	6.65	7.35	7.28	7.63	7.28	7.4	7.71	7.45	7.72	8.13	7.75	7.37
Specific Conductance	mS/cm	4.779	6.243	3.66	3.583	0.575	0.958	0.562	0.698	2.026	0.547	0.55	1.387	0.518	0.705	0.824
Temperature	°C	16.03	11.53	11.2	14.84	7.83	19.56	8.83	4.65	13.8	8.53	19.16	8.27	5.09	12.7	13.18
Turbidity	NTU	0	3.9	0.8	6.6	0	4	0	143.3	0	5.1	0	0	0	0	0.5

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-623S 9/27/2016	MW-623S 12/22/2016	MW-623S 3/27/2018	MW-623S 8/20/2018	MW-623D 4/25/2014	MW-623D 9/8/2014	MW-623D 12/4/2014	MW-623D 3/18/2015	MW-623D 6/22/2015	MW-623D 6/8/2016	MW-623D 9/27/2016	MW-623D 12/22/2016	MW-623D 3/27/2018	MW-623D 8/20/2018	MW-624S 4/25/2014	
Field Parameters																
Depth to Water	ft btoc	4.25	4.61	4.01	4.06	5.1	4.78	5.89	4.4	4.1	5.15	4.41	4.86	4.19	4.23	6.48
Dissolved Oxygen	mg/L	0.29	3.2	0.42	0.24	0.61	0.15	0.17	0.04	0.03	0.1	0.04	4.3	0.66	0.05	1.76
Oxidation-Reduction Potential	millivolts	-172.6	-158.8	-42.3	-171.2	-216.4	-89.3	-187.6	-117.9	-172.5	-138.8	-143.8	-136.1	38.4	-152.6	-41
pH	pH units	7.28	7.45	7.17	7.15	7.52	5.2	7.73	7.28	7.57	7.54	7.2	7.61	7.49	7.53	7.61
Specific Conductance	mS/cm	0.839	0.777	0.596	0.558	0.549	0.506	0.529	0.558	0.545	0.528	0.712	0.717	0.514	0.548	0.623
Temperature	°C	19.21	9.06	5.96	19.2	12.13	13.83	10.47	7.28	12.85	12.22	14.72	9.73	8.91	14.03	7.9
Turbidity	NTU	0	0.6	0	0	6.3	0	0	0	0	3.3	0	3.9	5.8	0.1	0

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-624S 9/8/2014	MW-624S 12/4/2014	MW-624S 3/18/2015	MW-624S 6/23/2015	MW-624S 6/8/2016	MW-624S 9/27/2016	MW-624S 12/22/2016	MW-624S 3/28/2018	MW-624S 8/20/2018	MW-624D 4/25/2014	MW-624D 9/8/2014	MW-624D 12/4/2014	MW-624D 3/18/2015	MW-624D 6/23/2015	MW-624D 6/8/2016	
Field Parameters																
Depth to Water	ft btoc	6.41	6.42	5.96	5.69	6.05	6.2	6.4	5.98	5.95	6.56	6.48	7.14	6.02	5.75	6.6
Dissolved Oxygen	mg/L	0.37	0.41	0.63	0.16	0.65	0.46	0.46	0.97	0.29	0.34	0.03	0.84	0.53	0.38	0.02
Oxidation-Reduction Potential	millivolts	127.1	19.6	125.4	-30.6	115.3	180.3	157.2	41.5	99.7	-538.1	-141.3	-172.9	-148.3	-156.5	-151.7
pH	pH units	7.37	7.69	7.69	7.44	7.37	7.18	7.39	7.25	7.33	7.6	7.32	7.92	7.15	7.53	7.48
Specific Conductance	mS/cm	1.799	1.775	0.983	0.868	0.929	0.831	0.9	0.75	0.604	1.359	2.822	1.608	1.519	1.831	1.766
Temperature	°C	19.92	9.23	3.45	15.1	14.07	18.81	9.15	6.5	20.25	10.09	14.93	11.78	9.84	10.8	12.58
Turbidity	NTU	0	0	0	0	0	0	0.5	0	0.3	15.8	7	2.3	4.1	1.1	1.6

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	MW-624D 9/27/2016	MW-624D 12/22/2016	MW-624D 3/28/2018	MW-624D 8/20/2018	MW-625S 8/23/2018	MW-625D 3/29/2018	MW-625D 8/23/2018	MW-626S 3/28/2018	MW-626S 8/22/2018	MW-626D 3/29/2018	MW-626D 8/22/2018	ST-MW-1S 6/9/2016	ST-MW-1S 9/28/2016	ST-MW-1S 12/21/2016	ST-MW-1S 3/30/2018	
Field Parameters																
Depth to Water	ft btoc	6.27	6.42	6.05	6.01	4.25	4.78	4.75	6.89	6.9	7.11	7.14	1.5	2.12	1.97	1.87
Dissolved Oxygen	mg/L	0.08	0.28	0.54	0.3	0.27	0.28	0.2	0.6	0.2	0	0.2	0.06	0.15	0.8	0.24
Oxidation-Reduction Potential	millivolts	-144.2	-172.5	-144.5	-151.5	-161.1	-299.3	-161.6	-29.9	-131.7	-178.5	-249.8	-124.9	-124.2	-100.6	80.4
pH	pH units	7.09	7.57	7.3	7.3	7.36	8.73	9.32	7.04	7.17	7.59	7.38	7.25	7.09	7.18	7
Specific Conductance	mS/cm	2.326	2.434	2.074	1.58	0.669	3.204	3.26	2.423	2.135	2.525	2.699	1.876	1.879	2.094	1.676
Temperature	°C	13.57	11.95	11.48	14.71	19.42	10.66	14.39	6.59	18.67	11.21	14.12	15.46	21.72	11.92	8.62
Turbidity	NTU	1.5	2.9	0	2.4	0	2.6	4.3	0	0	2.6	11.9	6.9	6	7.9	0

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

Units	ST-MW-1S 8/20/2018	ST-MW-1D 6/9/2016	ST-MW-1D 9/28/2016	ST-MW-1D 12/21/2016	ST-MW-1D 3/30/2018	ST-MW-1D 8/20/2018	ST-MW-2S 6/8/2016	ST-MW-2S 9/28/2016	ST-MW-2S 12/21/2016	ST-MW-2S 3/30/2018	ST-MW-2S 8/21/2018	ST-MW-2D 6/8/2016	ST-MW-2D 9/28/2016	ST-MW-2D 12/21/2016	ST-MW-2D 3/30/2018	
Field Parameters																
Depth to Water	ft btoc	1.8	1.24	1.95	1.9	1.69	1.64	1.9	2.41	2.78	2.45	2.44	1.84	2.2	2.5	2.45
Dissolved Oxygen	mg/L	0.09	0.09	0.3	0.55	0.44	0.05	0.64	0.18	0.84	0.06	0.13	0.29	0.03	0.4	0.43
Oxidation-Reduction Potential	millivolts	-92.5	-115.1	-119	-104.1	-85.2	-97.3	-89.3	-161.2	-135.2	-119.3	-97.5	-119.4	-157.1	-124.3	-123.7
pH	pH units	7.08	71	6.99	7.37	6.88	7.08	7.01	7.29	7.1	7.17	7.13	7.26	7.55	7.72	7.19
Specific Conductance	mS/cm	1.416	2.068	2.978	2.901	2.47	4.365	0.966	0.86	1.705	1.01	0.954	1.607	2.069	2.324	1.467
Temperature	°C	21.35	13.44	19.87	13.78	10.84	16.63	14.35	18.13	9.17	6.1	19.22	12.84	14.49	12.19	9.16
Turbidity	NTU	6.8	9.5	8.4	3	5.8	2.5	8.9	6.8	21.6	12.1	4.9	10	0.7	0	24.3

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

	Units	ST-MW-2D 8/21/2018	ST-MW-3S 6/7/2016	ST-MW-3S 9/28/2016	ST-MW-3S 12/21/2016	ST-MW-3S 3/29/2018	ST-MW-3D 8/21/2018	ST-MW-3D 6/7/2016	ST-MW-3D 9/28/2016	ST-MW-3D 12/21/2016	ST-MW-3D 3/29/2018	ST-MW-3D 8/21/2018	ST-MW-4S 6/9/2016	ST-MW-4S 9/28/2016	ST-MW-4S 12/21/2016	ST-MW-4S 3/30/2018
Field Parameters																
Depth to Water	ft btoc	2.39	1.35	1.5	1.85	1.55	1.67	1.43	1.55	2.59	1.51	1.65	2.36	2.75	2.92	2.83
Dissolved Oxygen	mg/L	0.22	0.06	0.19	0.71	0.32	0.27	0	0.14	0.99	0	0.19	0.07	0.26	0.58	0.03
Oxidation-Reduction Potential	millivolts	-113.3	-101.1	-92.2	-78.5	-57.1	-70.4	-121.3	-148.3	-107.1	-112.4	-140.1	-129.7	-99.6	-96.7	-92
pH	pH units	7.02	7.14	7.23	7.11	7.11	7.14	7.36	7.36	7.24	7.27	7.2	7.33	7.13	7.27	7.22
Specific Conductance	mS/cm	1.355	1.123	1.402	1.501	1.051	1.448	1.192	1.468	1.594	1.55	1.492	2.034	2.238	2.414	2.056
Temperature	°C	15.1	14.83	19.06	11.92	7.78	21.25	10.9	17.48	12.52	9.72	16.67	14.89	21.47	11.72	8.79
Turbidity	NTU	6.1	13.1	18.3	9.6	9.8	4.8	9.3	3.8	5.3	8.4	0.6	0	0	5.7	5.6

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

	Units	ST-MW-4S 8/21/2018	ST-MW-4D 6/9/2016	ST-MW-4D 9/28/2016	ST-MW-4D 12/21/2016	ST-MW-4D 3/30/2018	ST-MW-4D 8/21/2018	ST-MW-5S 6/8/2016	ST-MW-5S 9/29/2016	ST-MW-5S 12/21/2016	ST-MW-5S 3/29/2018	ST-MW-5S 8/20/2018	ST-MW-5D 6/8/2016	ST-MW-5D 9/29/2016	ST-MW-5D 12/21/2016	ST-MW-5D 3/29/2018
Field Parameters																
Depth to Water	ft btoc	2.88	2.97	2.89	3.35	2.9	2.9	5.73	4.15	4.41	3.92	3.79	4.78	4.15	4.44	3.89
Dissolved Oxygen	mg/L	0.33	0.05	0.06	0.31	0.32	0.09	0	6.65	0.05	0.19	0.05	0.08	0.18	0.77	0.62
Oxidation-Reduction Potential	millivolts	-132.2	-94.5	-82.1	-70.8	-42.2	268.3	-97.2	-135.8	-135.1	71	-143.7	-155.8	-158.8	-158.4	-109.2
pH	pH units	7.1	7.2	7.08	7.49	7.1	7.28	7.02	6.99	7.01	6.58	7.01	7.48	7.52	7.58	7.38
Specific Conductance	mS/cm	1.833	2.496	3.274	3.633	2.435	1.529	1.235	0.964	1.849	1.158	2.031	1.638	2.088	2.164	1.771
Temperature	°C	20.52	13.13	17.36	14.13	10.71	16.31	19.64	23.2	10.59	8.12	23.92	14.12	17.6	13.42	10.01
Turbidity	NTU	2.3	13	7.4	0	24.8	21.8	17.3	7.6	9.2	4.3	0	10.1	0	3.2	7.9

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 1. Field Parameters -2014 - 2018

OMC Plant 2 Site (OU4)

	Units	ST-MW-5D 8/20/2018	W-5 4/25/2014	W-5 9/8/2014	W-5 12/4/2014	W-5 3/19/2015	W-5 6/25/2015	W-5 6/7/2016	W-5 9/27/2016	W-5 12/21/2016	W-5 3/28/2018	W-5 8/21/2018
Field Parameters												
Depth to Water	ft btoc	3.77	7.4	6.79	6.9	6.31	6.12	6.35	6.45	4.8	--	6.18
Dissolved Oxygen	mg/L	8.79	1.35	7.95	0.47	3.12	0.38	0.09	2.5	0.07	0.26	
Oxidation-Reduction Potential	millivolts	-132.9	123.2	-218.2	20	199.8	-143	-133.2	-131.2	8.8	-60.2	-150.8
pH	pH units	7.28	7.64	5.99	8.41	7.65	7.84	7.22	6.88	7.62	6.72	7.24
Specific Conductance	mS/cm	2.003	0.508	1.717	0.596	1.188	1.854	2.006	2.804	1.51	5.311	2.345
Temperature	°C	18.85	9.92	14.09	9.17	4.4	12.15	12.16	16.52	10.73	10.17	14.56
Turbidity	NTU	0.2	2.5	0	0.8	5.8	9.2	0.7	2.9	2.7	0	1.2

Notes:

ft btoc = feet below top of casing

mL/min = milliliters per minute

mg/L = milligrams per liter

mS/cm = millSiemens per centimeter

°C = degrees Celsius

NTU = Nephelometric turbidity units

Table 2. Analytical Results - 2014 - 2018

OMC Plant 2 Site (OU4)
Waukegan, Illinois

	MCL ^a	MW-003S 6/8/2016	MW-003S 9/29/2016	MW-003S 12/21/2016	MW-003S 3/29/2018	MW-003S 8/21/2018	MW-003D 6/8/2016	MW-003D 9/29/2016	MW-003D 12/21/2016	MW-003D 3/29/2018	MW-003D 8/21/2018	MW-011S 4/24/2014	MW-011S 9/12/2014	MW-011S 12/4/2014	MW-011S 3/19/2015	MW-011S 6/23/2015	MW-011S 6/8/2016	MW-011S 9/28/2016	MW-011S 12/21/2016	MW-011S 3/29/2018	MW-011S 8/21/2018		
Polychlorinated Biphenyls (PCBs)																							
PCB-1016 (Arochlor 1016)	-	ug/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--	--	--	--	--	
PCB-1242 (Arochlor 1242)	-	ug/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--	--	--	--	--	--	
PCB-1248 (Arochlor 1248)	-	ug/L	--	--	--	--	1 U	1 U	1 U	1 U	1.9 J	1 U	1 U	1 U	1 U	--	--	--	--	--	--	--	
PCB-1260 (Arochlor 1260)	-	ug/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--	--	--	--	--	--	
Volatile Organic Compounds																							
1,1,1-Trichloroethane	200	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
1,1,2,2-Tetrachloroethane	-	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
1,1,2-Trichloroethane	5	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
1,1-Dichloroethane	-	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
1,1-Dichloroethylene	7	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.91 J	1.7 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
1,2,4-Trichlorobenzene	70	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
1,4-Dichlorobenzene	75	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
1,4-Dioxane (P-Dioxane)	-	ug/L	--	--	--	--	--	--	--	--	--	--	100 R	100 R	200 R	100 R	--	--	--	--	--	--	
Acetone	-	ug/L	10 U	10 U	10 U	10 U	3.6 J	10 U	10 U	10 U	4.4 J	10 U	20 U	20 U	20 U	10 U	10 U	10 U	10 U	10 U	10 U	3.3 J	
Benzene	5	ug/L	5 U	5 U	5 U	5 U	5 U	120	120	150	150 J+	120	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Carbon Disulfide	-	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Chlorinated Fluorocarbon (Freon 113)	-	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Chloroethane	-	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Chloroform ^b	80	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Chloromethane	-	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Cis-1,2-Dichloroethylene	70	ug/L	5 U	5 U	5 U	2.5 J	5 U	5 U	5 U	5 U	5 U	5 U	73 J	310	310	83	61	16	13	8.6	5 UJ	4.2 J	
Dichloromethane	5	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Ethylbenzene	700	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1.8 J+	1.4 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Isopropylbenzene (Cumene)	-	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
M-Dichlorobenzene	-	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Methyl Acetate	-	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Methyl Ethyl Ketone (2-Butanone)	-	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	-	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	
Methyl N-Butyl Ketone	-	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	
Tetrachloroethylene (PCE)	5	ug/L	5 U	5 U	2.2 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1.3 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Toluene	1000	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.6	10	12	12 J+	7.9	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	
Trans-1,2-Dichloroethene	100	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.9 J	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Trichloroethylene	5	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Vinyl Chloride	2	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	35	60	100	43	55	36	7.3	5.9	55 J+	3.5 J	
Xylene, O (1,2-Dimethylbenzene) ^c	10,000	ug/L	5 U	5 U	5 U	5 U	5 U	4.7 J	14	8.4	16 J+	12	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Xylene, M&P (Sum of isomers) ^c	10000	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	

Notes:

Table 2. Analytical Results - 2014 - 2018

OMC Plant 2 Site (OU4)
Waukegan, Illinois

	MW-501D MCL ^a 12/4/2014	MW-501D 3/19/2015	MW-501D 6/23/2015	MW-501D 6/8/2016	MW-501D 9/27/2016	MW-501D 12/22/2016	MW-501D 3/27/2018	MW-513S 8/20/2018	MW-513S 4/23/2014	MW-513S 9/11/2014	MW-513S 12/3/2014	MW-513S 3/17/2015	MW-513S 6/24/2015	MW-513S 6/7/2016	MW-513S 9/28/2016	MW-513S 12/21/2016	MW-513S 3/29/2018	MW-513S 8/21/2018	MW-513D 4/23/2014	MW-513D 9/11/2014	MW-513D 12/3/2014	MW-513D 3/17/2015	
Polychlorinated Biphenyls (PCBs)																							
PCB-1016 (Arochlor 1016)	-	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	--	--	--	--	--	--	1 UJ	1 U	1 U	1 U	1 U	
PCB-1242 (Arochlor 1242)	-	1 U	1 U	1 U	1 U	1 U	1.2	1 U	1 U	1 U	1 U	--	--	--	--	--	--	1 UJ	1 U	1 U	1 U	1 U	
PCB-1248 (Arochlor 1248)	-	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	6.5 J	1 U	1 U	--	--	--	--	--	--	1 UJ	1 U	1 U	1 U	1 U	
PCB-1260 (Arochlor 1260)	-	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	--	--	--	--	--	--	1 UJ	1 U	1 U	1 U	1 U	
Volatile Organic Compounds																							
1,1,1-Trichloroethane	200	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	-	2.9 J	2.5 J	3.1 J	5.9	8.5	9.7	6.9	6.5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethylene	7	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,4-Trichlorobenzene	70	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene	75	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,4-Dioxane (P-Dioxane)	-	100 R	100 R	--	--	--	--	--	100 R	100 R	100 R	--	--	--	--	--	--	100 R					
Acetone	-	20 U	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U	20 U	10 U	10 U	10 U	10 U	3.7 J	10 U	10 U	20 U	20 U	
Benzene	5	1.6 J	1.2 J	1.5 J	1.1 J	1.5 J	1.1 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Disulfide	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorinated Fluorocarbon (Freon 113)	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroethane	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform ^b	80	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloromethane	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,2-Dichloroethylene	70	5.4	4.2 J	5 U	8.2	15	15	12	9.2	5 U	5 U	5 U	5 U	5 U	1.2 J	1.2 J	2 J	1.4 J	5 U	5 U	5 U	5 U	5 U
Dichloromethane	5	5 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	10 U
Ethylbenzene	700	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Isopropylbenzene (Cumene)	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
M-Dichlorobenzene	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Methyl Acetate	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Methyl Ethyl Ketone (2-Butanone)	-	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	-	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methyl N-Butyl Ketone	-	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethylene (PCE)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	1000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,2-Dichloroethene	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethylene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Chloride	2	13	9.5	7.2	5	5.8	5 U	4.7 J	4.7 J	5 U	0.34 J	5 U	8.4	5 U	5 U	5 U	5 U	2.9 J	5 U	5 U	5 U	5 U	8.8
Xylene, O (1,2-Dimethylbenzene) ^c	10,000	5 U	5 U	5 U	5 U	5 U																	

Table 2. Analytical Results - 2014 - 2018
 OMC Plant 2 Site (OU4)
 Waukegan, Illinois

	MW-516S MCL ^a 8/21/2018	MW-516D 6/8/2016	MW-516D 9/28/2016	MW-516D 12/21/2016	MW-516D 3/29/2018	MW-516D 8/21/2018	MW-528S 4/23/2014	MW-528S 9/12/2014	MW-528S 12/4/2014	MW-528S 3/18/2015	MW-528S 6/24/2015	MW-528S 6/8/2016	MW-528S 9/28/2016	MW-528S 12/21/2016	MW-528S 3/29/2018	MW-528S 8/21/2018	MW-528D 4/23/2014	MW-528D 9/12/2014	MW-528D 12/4/2014	MW-528D 3/18/2015	MW-528D 6/24/2015	MW-528D 6/8/2016	
Polychlorinated Biphenyls (PCBs)																							
PCB-1016 (Arochlor 1016)	-	--	--	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--	1 U	1 U	1 U	1 U	1 U	--	
PCB-1242 (Arochlor 1242)	-	--	--	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--	1 U	1 U	1 U	1 U	1 U	--	
PCB-1248 (Arochlor 1248)	-	--	--	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--	1 U	1 U	1 U	1 U	1 U	--	
PCB-1260 (Arochlor 1260)	-	--	--	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--	1 U	1 U	1 U	1 U	1 U	--	
Volatile Organic Compounds																							
1,1,1-Trichloroethane	200	5 U	50 U	50 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	-	5 U	50 U	50 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	50 U	50 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	-	5 U	50 U	50 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethylene	7	5 U	50 U	50 UJ	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
1,2,4-Trichlorobenzene	70	5 U	50 U	50 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene	75	5 U	50 U	50 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,4-Dioxane (P-Dioxane)	-	--	--	--	--	--	100 R	100 R	100 R	--	--	--	--	--	--	--	100 R	14 J	100 R	100 R	--	--	
Acetone	-	4.5 J	100 U	100 U	50 U	10 U	4.8 J	10 U	20 U	10 U	10 U	10 U	10 U	10 U	10 U	3.8 J	10 U	20 U	20 U	20 U	20 U	10 U	10 U
Benzene	5	5 U	690	650	710	600 J	710 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Disulfide	-	5 U	50 U	50 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorinated Fluorocarbon (Freon 113)	-	5 U	50 U	50 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroethane	-	5 U	50 U	50 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform ^b	80	5 U	50 U	50 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloromethane	-	5 U	50 U	50 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,2-Dichloroethylene	70	5 U	50 UJ	25 U	5 U	5 U	5 U	5 U	5 U	1 J	5 U	5 U	5 U	5 U	5 U	6.3 J	5 U	1.5 J	5 U	5 U	3.6 J	5 U	5 U
Dichloromethane	5	5 U	50 U	50 U	25 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U
Ethylbenzene	700	5 U	50 U	50 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Isopropylbenzene (Cumene)	-	5 U	50 U	50 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
M-Dichlorobenzene	-	5 U	50 U	50 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Methyl Acetate	-	5 U	50 U	50 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Methyl Ethyl Ketone (2-Butanone)	-	10 U	100 U	100 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U						
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	-	10 U	100 U	100 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U						
Methyl N-Butyl Ketone	-	10 U	100 U	100 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U						
Tetrachloroethylene (PCE)	5	5 U	50 U	50 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	1000	5 U	22 J	50 U	9.7 J	10 J+	7 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,2-Dichloroethene	100	5 U	50 UJ	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethylene	5	5 U	50 U	50 U	25 U	5 U	5 UJ	5 U	0.98 J	0.81 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.55 J	0.37 J	5 U	5 U	5 U	
Vinyl Chloride	2	5 U	50 U	50 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.35 J	5 U	5 U	5 U	5 U	5 U
Xylene, O (1,																							

Table 2. Analytical Results - 2014 - 2018

OMC Plant 2 Site (OU4)
Waukegan, Illinois

	MW-528D MCL ^a 9/28/2016	MW-528D 12/21/2016	MW-528D 3/29/2018	MW-528D 8/21/2018	MW-600S 4/23/2014	MW-600S 12/2/2014	MW-600S 3/17/2015	MW-600S 6/24/2015	MW-600S 6/6/2016	MW-600S 9/26/2016	MW-600S 12/19/2016	MW-600S 3/26/2018	MW-600S 8/23/2018	MW-600D 4/23/2014	MW-600D 12/2/2014	MW-600D 3/17/2015	MW-600D 6/24/2015	MW-600D 6/6/2016	MW-600D 9/26/2016	MW-600D 12/19/2016	MW-600D 3/26/2018	MW-600D 8/23/2018	MW-601S 2/4/2014		
Polychlorinated Biphenyls (PCBs)																									
PCB-1016 (Arochlor 1016)	-	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--	1 U	
PCB-1242 (Arochlor 1242)	-	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--	1 U	
PCB-1248 (Arochlor 1248)	-	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--	1 U	
PCB-1260 (Arochlor 1260)	-	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--	1 U	
Volatile Organic Compounds																									
1,1,1-Trichloroethane	200	5 U	5 U	5 U	5 U	5 U	5 U	500 U	5 U	5 U	5 U	5 U	5 U	160 U	500 U	5 U	5 U	250 U	5 U	200 U	5 U	200 U	5 U	200 U	5 U
1,1,2,2-Tetrachloroethane	-	5 U	5 U	5 U	5 U	5 U	5 U	500 U	5 U	5 U	5 U	5 U	5 U	160 U	500 U	5 U	5 U	250 U	5 U	200 U	5 U	200 U	5 U	200 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	500 U	5 U	5 U	5 U	5 U	5 U	160 U	500 U	5 U	5 U	250 U	5 U	200 U	5 U	200 U	5 U	200 U	5 U
1,1-Dichloroethane	-	5 U	5 U	5 U	5 U	5 U	5 U	500 U	5 U	5 U	5 U	5 U	5 U	160 U	500 U	5 U	5 U	250 U	5 U	200 U	5 U	200 U	5 U	200 U	5 U
1,1-Dichloroethylene	7	5 U	5 U	5 U	5 U	5 U	5 U	500 U	5 U	5 U	5 U	5 U	5 U	71 J	110 J	5 U	36	250 U	27	200 U	39	200 U	5 U	200 U	5 U
1,2,4-Trichlorobenzene	70	5 U	5 U	5 U	5 U	5 U	5 U	500 U	5 U	5 U	5 U	5 U	5 U	160 U	500 U	5 U	5 U	250 U	5 U	200 U	5 U	200 U	5 U	200 U	5 U
1,4-Dichlorobenzene	75	5 U	5 U	5 U	5 U	5 U	5 U	500 U	5 U	5 U	5 U	5 U	5 U	160 U	500 U	5 U	5 U	250 U	5 U	200 U	5 U	200 U	5 U	200 U	5 U
1,4-Dioxane (P-Dioxane)	-	--	--	--	--	100 R	100 R	10000 R	--	--	--	--	--	3200 R	10000 R	100 R	--	--	--	--	--	--	--	100 U	
Acetone	-	10 U	10 U	10 U	4.6 J	10 U	20 U	2000 U	10 U	10 U	10 U	10 U	10 U	320 U	2000 U	20 U	20 U	500 U	10 U	400 U	10 U	400 U	10 U	400 U	10 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	500 U	5 U	5 U	5 U	5 U	5 U	160 U	500 U	5 U	5 U	250 U	5 U	200 U	5 U	200 U	5 U	200 U	5 U
Carbon Disulfide	-	5 U	5 U	5 U	5 U	5 U	5 U	500 U	5 U	5 U	5 U	5 U	5 U	160 U	500 U	5 U	5 U	250 U	5 U	200 U	5 U	200 U	5 U	200 U	5 U
Chlorinated Fluorocarbon (Freon 113)	-	5 U	5 U	5 U	5 U	5 U	5 U	500 U	5 U	5 U	5 U	5 U	5 U	160 U	500 U	5 U	5 U	250 U	5 U	200 U	5 U	200 U	5 U	200 U	5 U
Chloroethane	-	5 U	5 U	5 U	5 U	5 U	5 U	500 U	5 U	5 U	5 U	5 U	5 U	160 U	500 U	5 U	5 U	250 U	5 U	200 U	5 U	200 U	5 U	200 U	5 U
Chloroform ^b	80	5 U	5 U	5 U	5 U	5 U	5 U	500 U	5 U	5 U	5 U	5 U	5 U	160 U	500 U	5 U	5 U	250 U	5 U	200 U	5 U	200 U	5 U	200 U	5 U
Chloromethane	-	5 U	5 U	5 U	5 U	5 U	5 U	500 U	5 U	5 U	5 U	5 U	5 U	160 U	500 U	5 U	5 U	250 U	5 U	200 U	5 U	200 U	5 U	200 U	5 U
Cis-1,2-Dichloroethylene	70	3.7 J	3.1 J	8.7	5.2	5 U	1.7 J	12000	5 UJ	5 U	5 U	5 U	5 U	5 U	5800 J	6500	5 U	6600	7800	5100	6300	6400	7,000.00	5 U	
Dichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	1000 U	5 U	5 U	5 U	5 U	5 U	160 U	500 U	10 U	5 U	250 U	5 U	200 U	5 U	200 U	10 U	200 U	5 U
Ethylbenzene	700	5 U	5 U	5 U	5 U	5 U	5 U	500 U	5 U	5 U	5 U	5 U	5 U	160 U	500 U	5 U	5 U	250 U	5 U	200 U	5 U	200 U	5 U	200 U	5 U
Isopropylbenzene (Cumene)	-	5 U	5 U	5 U	5 U	5 U	5 U	500 U	5 U	5 U	5 U	5 U	5 U	160 U	500 U	5 U	5 U	250 U	5 U	200 U	5 U	200 U	5 U	200 U	5 U
M-Dichlorobenzene	-	5 U	5 U	5 U	5 U	5 U	5 U	500 U	5 U	5 U	5 U	5 U	5 U	160 U	500 U	5 U	5 U	250 U	5 U	200 U	5 U	200 U	5 U	200 U	5 U
Methyl Acetate	-	5 U	5 U	5 U	5 U	5 U	5 U	500 U	5 U	5 U	5 U	5 U	5 U	160 U	500 U	5 U	5 U	250 U	5 U	200 U	5 U	200 U	5 U	200 U	5 U
Methyl Ethyl Ketone (2-Butanone)	-	10 U	10 U	10 U	10 U	10 U	10 U	1000 U	10 U	10 U	10 U	10 U	10 U	320 U	1000 U	10 U	10 U	500 U	10 U	400 U	10 U	400 U	10 U	400 U	10 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	-	10 U	10 U	10 U	10 U	10 U	10 U	1000 U	10 U	10 U	10 U	10 U	10 U	320 U	1000 U	10 U	10 U	500 U	10 U	400 U	10 U	400 U	10 U	400 U	10 U
Methyl N-Butyl Ketone	-	10 U	10 U	10 U	10 U	10 U	10 U	1000 U	10 U	10 U	10 U	10 U	10 U	320 U	1000 U	10 U	10 U	500 U	10 U	400 U	10 U	400 U	10 U	400 U	10 U
Tetrachloroethylene (PCE)	5	5 U	5 U	5 U	5 U	5 U	5 U	500 U	5 U	5 U	5 U	5 U	5 U	160 U	500 U	5 U	5 U	250 U	5 U	200 U	5 U	200 U	5 U	200 U	5 U
Toluene	1000	5 U	5 U	5 U	5 U	5 U	5 U	500 U	5 U	5 U															

Table 2. Analytical Results - 2014 - 2018

OMC Plant 2 Site (OU4)
Waukegan, Illinois

	MCL ^a	MW-601S 4/22/2014	MW-601S 9/9/2014	MW-601S 12/2/2014	MW-601S 3/17/2015	MW-601S 6/23/2015	MW-601S 6/6/2016	MW-601S 9/26/2016	MW-601S 12/19/2016	MW-601S 3/26/2018	MW-601D 8/23/2018	MW-601D 2/4/2014	MW-601D 4/22/2014	MW-601D 9/9/2014	MW-601D 12/2/2014	MW-601D 3/17/2015	MW-601D 6/23/2015	MW-601D 6/6/2016	MW-601D 9/26/2016	MW-601D 12/19/2016	MW-601D 3/26/2018	MW-602S 8/23/2018	MW-602S 1/30/2014	MW-602S 4/21/2014	MW-602S 9/9/2014	MW-602S 12/2/2014		
Polychlorinated Biphenyls (PCBs)																												
PCB-1016 (Arochlor 1016)	-	1 UJ	1 U	1 U	1 U	1 U	--	--	--	--	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	--	--	--	--	1 U	1 UJ	1 U	1 U	1 U		
PCB-1242 (Arochlor 1242)	-	1 UJ	1 U	1 U	1 U	1 U	--	--	--	--	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	--	--	--	--	1 U	1 UJ	1 U	1 U	1 U		
PCB-1248 (Arochlor 1248)	-	1 UJ	1 U	1 U	1 U	1 U	--	--	--	--	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	--	--	--	--	1 U	1 UJ	1 U	1 U	1 U		
PCB-1260 (Arochlor 1260)	-	1 UJ	1 U	1 U	1 U	1 U	--	--	--	--	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	--	--	--	--	1 U	1 UJ	1 U	1 U	1 U		
Volatile Organic Compounds																												
1,1,1-Trichloroethane	200	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	2000 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	5 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	
1,1,2,2-Tetrachloroethane	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	2000 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	5 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	2000 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	5 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	
1,1-Dichloroethane	-	5 U	0.22 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	2000 U	500 U	2500 U	1000 U	4.3 J	50 U	6.4	2500 U	4.6 J	200 U	5 U	5 U	0.71 J	5 U	5 U	5 U	
1,1-Dichloroethylene	7	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	2000 U	260 J	2500 U	1000 U	190 J+	170	150 J+	2500 U	150 J+	200 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
1,2,4-Trichlorobenzene	70	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	2000 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	5 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	
1,4-Dichlorobenzene	75	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	2000 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	5 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	
1,4-Dioxane (P-Dioxane)	-	100 R	100 R	100 R	100 R	--	--	--	--	--	10000 U	40000 R	10000 R	50000 R	20000 R	--	--	--	--	--	100 U	100 R	100 R	100 R	100 R			
Acetone	-	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U	10 U	3 J	1000 U	4000 U	1000 U	10000 U	10 U	100 U	10 U	5000 U	10 U	400 U	10 U	10 U	20 U	20 U	20 U	20 U	
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	2000 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	5 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	
Carbon Disulfide	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	2000 U	500 U	2500 U	1000 U	5.5	50 U	5 U	2500 U	2.1 J	200 U	5 U	5 U	5 U	5 U	5 U	5 U	
Chlorinated Fluorocarbon (Freon 113)	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	2000 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	5 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	
Chloroethane	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	2000 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	5 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	
Chloroform ^b	80	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	2000 U	1300 J	2500 U	1000 U	5 U	50 U	5 U	2500 U	5 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	
Chloromethane	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	2000 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	5 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	
Cis-1,2-Dichloroethylene	70	5 U	5 U	6.7	5 U	5 U	1.2 J	5 U	5 U	5 U	37000	49000 J	35000	69000	22000	20900	19000	33000	35000	22000	9,100.00	5 U	5 U	1.4 J	0.93 J	5 U	5 U	5 U
Dichloromethane	5	5 U	10 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	1000 U	2000 U	1000 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	5 U	200 U	3.9 J	5 U	10 U	5 U	5 U	5 U	
Ethylbenzene	700	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	2000 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	5 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	
Isopropylbenzene (Cumene)	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	2000 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	5 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	
M-Dichlorobenzene	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	2000 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	5 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	
Methyl Acetate	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	2000 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	5 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	
Methyl Ethyl Ketone (2-Butanone)	-	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	1000 U	4000 U	1000 U	5000 U	2000 U	10 U												

Table 2. Analytical Results - 2014 - 2018

OMC Plant 2 Site (OU4)
Waukegan, Illinois

	MW-602S MCL ^a <i>Polychlorinated Biphenyls (PCBs)</i>	3/17/2015	6/24/2015	6/6/2016	MW-602S 9/26/2016	MW-602S 12/19/2016	MW-602S 3/26/2018	MW-602D 8/23/2018	MW-602D 1/30/2014	MW-602D 4/21/2014	MW-602D 9/9/2014	MW-602D 12/2/2014	MW-602D 3/17/2015	MW-602D 6/24/2015	MW-602D 6/6/2016	MW-602D 9/26/2016	MW-602D 12/19/2016	MW-602D 3/28/2018	MW-602D 8/23/2018	MW-602D 4/22/2014	MW-603S 9/9/2014	MW-603S 12/2/2014	MW-603S 3/17/2015	MW-603S 6/24/2015	MW-603S 6/7/2016	MW-603S 9/26/2016
PCB-1016 (Arochlor 1016)	-	1 U	1 U	--	--	--	--	1 U	1 UJ	1 U	1 U	1 U	--	--	--	--	--	--	1 UJ	1 UJ	1 U	1 U	1 U	--	--	
PCB-1242 (Arochlor 1242)	-	1 U	1 U	--	--	--	--	1 U	1 UJ	1 U	1 U	1 U	--	--	--	--	--	--	1 UJ	1 UJ	1 U	1 U	1 U	--	--	
PCB-1248 (Arochlor 1248)	-	1 U	1 U	--	--	--	--	1 U	1 UJ	1 U	1 U	1 U	--	--	--	--	--	--	1 UJ	1 UJ	1 U	1 U	1 U	--	--	
PCB-1260 (Arochlor 1260)	-	1 U	1 U	--	--	--	--	1 U	1 UJ	1 U	1 U	1 U	--	--	--	--	--	--	1 UJ	1 UJ	1 U	1 U	1 U	--	--	
Volatile Organic Compounds																										
1,1,1-Trichloroethane	200	5 U	5 U	5 U	5 U	5 U	5 U	1000 U	200 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	250 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
1,1,2,2-Tetrachloroethane	-	5 U	5 U	5 U	5 U	5 U	5 U	1000 U	200 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	250 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	1000 U	200 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	250 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
1,1-Dichloroethane	-	5 U	5 U	5 U	5 U	5 U	5 U	1000 U	200 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	250 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
1,1-Dichloroethylene	7	5 U	5 U	5 U	5 U	5 U	5 U	1000 UJ	130 J	120 J	410 J	1000 U	44	63	60	2500 U	250 U	200 U	12 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,4-Trichlorobenzene	70	5 U	5 U	5 U	5 U	5 U	5 U	1000 U	200 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	250 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
1,4-Dichlorobenzene	75	5 U	5 U	5 U	5 U	5 U	5 U	1000 U	200 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	250 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
1,4-Dioxane (P-Dioxane)	-	100 R	--	--	--	--	--	20000 U	4000 R	10000 R	50000 R	20000 R	--	--	--	--	--	--	100 R	100 R	100 R	--	--	--	--	
Acetone	-	20 U	10 U	10 U	10 U	10 U	10 U	2000 U	400 U	1000 U	4000 U	10 U	100 U	10 U	5000 U	500 U	400 U	10 U	20 U	20 U	20 U	10 U	10 U	10 U		
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	1000 U	200 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	250 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Carbon Disulfide	-	5 U	5 U	5 U	5 U	5 U	5 U	1000 U	200 U	500 U	2500 U	1000 U	6.6	50 U	5 U	2500 U	250 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Chlorinated Fluorocarbon (Freon 113)	-	5 U	5 U	5 U	5 U	5 U	5 U	1000 U	200 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	250 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Chloroethane	-	5 U	5 U	5 U	5 U	5 U	5 U	1000 U	200 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	250 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Chloroform ^b	80	5 U	5 U	5 U	5 U	5 U	5 U	1000 U	200 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	250 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Chloromethane	-	5 U	5 U	5 U	5 U	5 U	5 U	1000 U	200 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	250 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Cis-1,2-Dichloroethylene	70	0.9 J	2 J	5 U	2 J	1 J	1.6 J	1.8 J	63000	59000 J	38000	41000	24000 J	29000	28000	27000	26000	15000 J-	19,000.00	400 J	17	1.9 J	5 U	4.6 J	37	2.1 J
Dichloromethane	5	10 U	5 U	5 U	5 U	5 U	5 U	1000 U	200 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	250 U	200 U	5 U	10 U	5 U	10 U	5 U	5 U	5 U	
Ethylbenzene	700	5 U	5 U	5 U	5 U	5 U	5 U	1000 U	200 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	250 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Isopropylbenzene (Cumene)	-	5 U	5 U	5 U	5 U	5 U	5 U	1000 U	200 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	250 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
M-Dichlorobenzene	-	5 U	5 U	5 U	5 U	5 U	5 U	1000 U	200 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	250 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Methyl Acetate	-	5 U	5 U	5 U	5 U	5 U	5 U	1000 U	200 U	500 U	2500 U	1000 U	5 U	50 U	5 U	2500 U	250 U	200 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Methyl Ethyl Ketone (2-Butanone)	-	10 U	10 U	10 U	10 U	10 U	10 U	2000 U	400 U	1000 U	5000 U	2000 U	10 U	100 U	10 U	5000 U	500 U	400 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	-	10 U	10 U	10 U	10 U	10 U	10 U	2000 U	400 U	1000 U	5000 U	2000 U	10 U	100 U	10 U	5000 U	500 U	400 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	
Methyl N-Butyl Ketone	-	10 U	10 U	10 U	10 U	10 U	10 U	2000 U	400 U	1000 U	5000 U	2000 U	10 U	100 U	10 U	5000 U	500 U	400 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	
Tetrachloroethylene (PCE)	5	5 U	5 U	5 U	5 U	5																				

Table 2. Analytical Results - 2014 - 2018
 OMC Plant 2 Site (OU4)
 Waukegan, Illinois

	MCL ^a	MW-603S 12/19/2016	MW-603S 3/27/2018	MW-603S 8/23/2018	MW-603D 4/22/2014	MW-603D 9/9/2014	MW-603D 12/2/2014	MW-603D 3/17/2015	MW-603D 6/24/2015	MW-603D 6/7/2016	MW-603D 9/26/2016	MW-603D 12/19/2016	MW-603D 3/27/2018	MW-603D 8/23/2018	MW-604S 4/23/2014	MW-604S 9/9/2014	MW-604S 12/2/2014	MW-604S 3/17/2015	MW-604S 6/24/2015	MW-604S 6/7/2016	MW-604S 9/27/2016	MW-604S 12/19/2016	MW-604S 3/28/2018	MW-604S 8/23/2018	MW-604D 4/23/2014	MW-604D 9/9/2014		
Polychlorinated Biphenyls (PCBs)																												
PCB-1016 (Arochlor 1016)	-	--	--	--	1 U	1 UJ	1 U	1 U	--	--	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--	--	1 U	1 UJ		
PCB-1242 (Arochlor 1242)	-	--	--	--	1 U	1 UJ	1 U	1 U	--	--	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--	--	1 U	1 UJ		
PCB-1248 (Arochlor 1248)	-	--	--	--	1 U	1 UJ	1 U	1 U	--	--	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--	--	1 U	1 UJ		
PCB-1260 (Arochlor 1260)	-	--	--	--	1 U	1 UJ	1 U	1 U	--	--	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--	--	1 U	1 UJ		
Volatile Organic Compounds																												
1,1,1-Trichloroethane	200	5 U	5 U	5 U	5000 U	500 U	2500 U	2000 U	5 U	2500 U	5 U	200 U	130 U	20 U	100 U	100 U	5 U	5 U	50 U	200 U	5 U	5 U	2000 U	250 U				
1,1,2,2-Tetrachloroethane	-	5 U	5 U	5 U	5000 U	500 U	2500 U	2000 U	5 U	2500 U	5 U	200 U	130 U	20 U	100 U	100 U	5 U	5 U	50 U	200 U	5 U	5 U	2000 U	250 U				
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5000 U	500 U	2500 U	2000 U	5 U	2500 U	5 U	200 U	130 U	20 U	100 U	100 U	5 U	5 U	50 U	200 U	5 U	5 U	2000 U	250 U				
1,1-Dichloroethane	-	5 U	5 U	5 U	5000 U	500 U	2500 U	2000 U	5 U	2500 U	5 U	200 U	130 U	2.7 J	100 U	100 U	1.5 J	1.6 J	50 U	200 U	5 U	5 U	2000 U	250 U				
1,1-Dichloroethylene	7	5 U	5 U	5 U	5000 U	150 J	2500 U	2000 U	26	2500 U	63	200 U	130 U	4.6 J	100 U	100 U	5 U	5 U	50 U	200 U	5 U	5 U	2000 U	44 J				
1,2,4-Trichlorobenzene	70	5 U	5 U	5 U	5000 U	500 U	2500 U	2000 U	5 U	2500 U	5 U	200 U	130 U	20 U	100 U	100 U	5 U	5 U	50 U	200 U	5 U	5 U	2000 U	250 U				
1,4-Dichlorobenzene	75	5 U	5 U	5 U	5000 U	500 U	2500 U	2000 U	5 U	2500 U	5 U	200 U	130 U	20 U	100 U	100 U	5 U	5 U	50 U	200 U	5 U	5 U	2000 U	250 U				
1,4-Dioxane (P-Dioxane)	-	--	--	--	100000 R	10000 R	50000 R	40000 R	--	--	--	--	--	2500 R	400 R	2000 R	2000 R	--	--	--	--	--	--	40000 R	5000 R			
Acetone	-	10 U	10 U	10 U	10000 U	2000 U	8000 U	10 U	5000 U	10 U	400 U	250 U	40 U	400 U	400 U	10 U	10 U	100 U	400 U	10 U	10 U	4000 U	1000 U					
Benzene	5	5 U	5 U	5 U	5000 U	500 U	2500 U	2000 U	5 U	2500 U	5 U	200 U	130 U	20 U	100 U	100 U	5 U	5 U	50 U	200 U	5 U	5 U	2000 U	250 U				
Carbon Disulfide	-	5 U	5 U	5 U	5000 U	500 U	2500 U	2000 U	2 J	2500 U	5 U	2500 U	4.1 J	200 U	130 U	20 U	100 U	100 U	5 U	5 U	50 U	200 U	5 U	5 U	2000 U	250 U		
Chlorinated Fluorocarbon (Freon 113)	-	5 U	5 U	5 U	5000 U	500 U	2500 U	2000 U	5 U	2500 U	5 U	200 U	130 U	20 U	100 U	100 U	5 U	5 U	50 U	200 U	5 U	5 U	2000 U	250 U				
Chloroethane	-	5 U	5 U	5 U	5000 U	500 U	2500 U	2000 U	5 U	2500 U	5 U	200 U	130 U	20 U	100 U	100 U	5 U	5 U	50 U	200 U	5 U	5 U	2000 U	250 U				
Chloroform ^b	80	5 U	5 U	5 U	5000 U	1300 J	2500 U	2000 U	5 U	2500 U	5 U	200 U	130 U	20 U	100 U	100 U	5 U	5 U	50 U	200 U	5 U	5 U	2000 U	250 U				
Chloromethane	-	5 U	5 U	5 U	5000 U	500 U	2500 U	2000 U	5 U	2500 U	5 U	200 U	130 U	20 U	100 U	100 U	5 U	5 U	50 U	200 U	5 U	5 U	2000 U	250 U				
Cis-1,2-Dichloroethylene	70	3.7 J	5 U	5 U	85000 J	36000	32000	22000	13000	35000	34000	42000	19000	8,600.00	4200 J	1200	2100	1400	190	290	1000	2,600.00	1000	91	30000 J	20000		
Dichloromethane	5	5 U	5 U	5 U	5000 U	500 U	2500 U	2000 U	5 U	2500 U	5 U	200 U	130 U	20 U	100 U	100 U	5 U	5 U	50 U	200 U	5 U	5 U	2000 U	500 U				
Ethylbenzene	700	5 U	5 U	5 U	5000 U	500 U	2500 U	2000 U	5 U	2500 U	5 U	200 U	130 U	20 U	100 U	100 U	5 U	5 U	50 U	200 U	5 U	5 U	2000 U	250 U				
Isopropylbenzene (Cumene)	-	5 U	5 U	5 U	5000 U	500 U	2500 U	2000 U	5 U	2500 U	5 U	200 U	130 U	20 U	100 U	100 U	5 U	5 U	50 U	200 U	5 U	5 U	2000 U	250 U				
M-Dichlorobenzene	-	5 U	5 U	5 U	5000 U	500 U	2500 U	2000 U	5 U	2500 U	5 U	200 U	130 U	20 U	100 U	100 U	5 U	5 U	50 U	200 U	5 U	5 U	2000 U	250 U				
Methyl Acetate	-	5 U	5 U	5 U	5000 U	500 U	2500 U	2000 U	5 U	2500 U	5 U	200 U	130 U	20 U	100 U	100 U	5 U	5 U	50 U	200 U	5 U	5 U	2000 U	250 U				
Methyl Ethyl Ketone (2-Butanone)	-	10 U	10 U	10 U	10000 U	1000 U	5000 U	4000 U	10 U	5000 U	10 U	400 U	250 U	40 U	200 U	200 U	10 U	10 U	100 U	400 U	10 U	10 U	4000 U	500 U				
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)</																												

Table 2. Analytical Results - 2014 - 2018

OMC Plant 2 Site (OU4)
Waukegan, Illinois

	MCL ^a	MW-604D 12/2/2014	MW-604D 3/17/2015	MW-604D 6/24/2015	MW-604D 6/7/2016	MW-604D 9/27/2016	MW-604D 12/20/2016	MW-604D 3/28/2018	MW-605S 8/23/2018	MW-605S 1/29/2014	MW-605S 4/22/2014	MW-605S 9/11/2014	MW-605S 12/3/2014	MW-605S 3/18/2015	MW-605S 6/24/2015	MW-605S 6/6/2016	MW-605S 9/27/2016	MW-605S 12/19/2016	MW-605S 3/28/2018	MW-605S 8/23/2018	MW-605D 1/29/2014	MW-605D 4/22/2014	MW-605D 9/11/2014	MW-605D 12/3/2014	MW-605D 3/17/2015	MW-605D 6/24/2015	
Polychlorinated Biphenyls (PCBs)																											
PCB-1016 (Arochlor 1016)	-	1 U	1 U	1 UJ	--	--	--	--	1 U	1 U	1 U	1 U	1 U	--	--	--	--	--	--	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
PCB-1242 (Arochlor 1242)	-	1 U	1 U	1 UJ	--	--	--	--	1 U	1 U	1 U	1 U	1 U	--	--	--	--	--	--	1 U	1 UJ	1 U	1.9 J	1 U	1 U	1 U	1 U
PCB-1248 (Arochlor 1248)	-	1 U	1 U	1 UJ	--	--	--	--	1 U	1 U	1 U	1 U	1 U	--	--	--	--	--	--	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
PCB-1260 (Arochlor 1260)	-	1 U	1 U	1 UJ	--	--	--	--	1 U	1 U	1 U	1 U	1 U	--	--	--	--	--	--	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
Volatile Organic Compounds																											
1,1,1-Trichloroethane	200	1300 U	1000 U	5 U	500 U	1000 U	500 U	5 U	200 U	5 U	80 U	1.9 J	50 U	3.8 J	5 U	50 U	100 U	50 U	5 U	5 U	1000 U	5000 U	130 U	2500 U	5000 U	5 U	
1,1,2,2-Tetrachloroethane	-	1300 U	1000 U	5 U	500 U	1000 U	500 U	5 U	200 U	5 U	80 U	25 U	50 U	50 U	5 U	50 U	100 U	50 U	5 U	5 U	1000 U	5000 U	130 U	2500 U	5000 U	5 U	
1,1,2-Trichloroethane	5	1300 U	1000 U	5 U	500 U	1000 U	500 U	5 U	200 U	5 U	80 U	25 U	50 U	50 U	5 U	50 U	100 U	50 U	5 U	5 U	1000 U	5000 U	130 U	2500 U	5000 U	5 U	
1,1-Dichloroethane	-	1300 U	1000 U	7.5	500 U	1000 U	500 U	5.1	200 U	30	35 J	26	18 J	25 J	11	50 U	100 U	50 U	2 J	2.1 J	1000 U	5000 U	130 U	2500 U	5000 U	5 U	
1,1-Dichloroethylene	7	210 J	1000 U	26	500 U	1000 U	500 U	42	200 U	5 UJ	80 U	14 J	50 U	20 J	5 U	50 U	100 U	50 UJ	5 U	5.9	1000 UJ	5000 U	50 J	2500 U	5000 U	46	
1,2,4-Trichlorobenzene	70	1300 U	1000 U	5 U	500 U	1000 U	500 U	5 U	200 U	5 U	80 U	25 U	50 U	50 U	5 U	50 U	100 U	50 U	5 U	5 U	1000 U	5000 U	130 U	2500 U	5000 U	5 U	
1,4-Dichlorobenzene	75	1300 U	1000 U	5 U	500 U	1000 U	500 U	5 U	200 U	5 U	80 U	25 U	50 U	50 U	5 U	50 U	100 U	50 U	5 U	5 U	1000 U	5000 U	130 U	2500 U	5000 U	5 U	
1,4-Dioxane (P-Dioxane)	-	25000 R	20000 R	--	--	--	--	--	100 U	1600 R	500 R	1000 R	--	--	--	--	--	--	--	20000 U	100000 R	2500 R	50000 R	100000 R	--		
Acetone	-	5000 U	4000 U	20 U	1000 U	2000 U	1000 U	10 U	400 U	10 U	160 U	50 U	100 U	200 U	10 U	100 U	200 U	100 U	10 U	10 U	2000 U	10000 U	500 U	10000 U	20000 U	10 U	
Benzene	5	1300 U	1000 U	5 U	500 U	1000 U	500 U	5 U	200 U	5 U	80 U	25 U	50 U	50 U	5 U	50 U	100 U	50 U	5 U	5 U	1000 U	5000 U	130 U	2500 U	5000 U	5 U	
Carbon Disulfide	-	1300 U	1000 U	5 U	500 U	1000 U	500 U	110	200 U	5 U	80 U	25 U	50 U	50 U	5 U	50 U	100 U	50 U	5 U	5 U	1000 U	5000 U	130 U	2500 U	5000 U	5 U	
Chlorinated Fluorocarbon (Freon 113)	-	1300 U	1000 U	5 U	500 U	1000 U	500 U	5 U	200 U	5 U	80 U	25 U	50 U	50 U	5 U	50 U	100 U	50 U	5 U	5 U	1000 U	5000 U	130 U	2500 U	5000 U	5 U	
Chloroethane	-	1300 U	1000 U	5 U	500 U	1000 U	500 U	5 U	200 U	5 U	80 U	25 U	50 U	50 U	5 U	50 U	100 U	50 U	5 U	5 U	1000 U	5000 U	130 U	2500 U	5000 U	5 U	
Chloroform ^b	80	1300 U	1000 U	5 U	500 U	1000 U	500 U	5 U	200 U	5 U	80 U	25 U	50 U	50 U	5 U	50 U	100 U	50 U	5 U	5 U	1000 U	5000 U	130 U	2500 U	5000 U	5 U	
Chloromethane	-	1300 U	1000 U	5 U	500 U	1000 U	500 U	5 U	200 U	5 U	80 U	25 U	50 U	50 U	5 U	50 U	100 U	50 U	5 U	5 U	1000 U	5000 U	130 U	2500 U	5000 U	5 U	
Cis-1,2-Dichloroethylene	70	29000	24000	22000	23000 J+	28000	31000 J-	45000	33,000.00	2000	1800 J	1900	1300	1200	600	1100 J+	1500	1200 J-	260	440.00	79000	96000 J	54000	55000	110000	71000	
Dichloromethane	5	1300 U	2000 U	5 U	500 U	1000 U	500 U	5 U	200 U	10 U	80 U	25 U	50 U	100 U	5 U	50 U	100 U	50 U	5 U	5 U	1000 U	5000 U	130 U	2500 U	5000 U	5 U	
Ethylbenzene	700	1300 U	1000 U	5 U	500 U	1000 U	500 U	5 U	200 U	5 U	80 U	25 U	50 U	50 U	5 U	50 U	100 U	50 U	5 U	5 U	1000 U	5000 U	130 U	2500 U	5000 U	5 U	
Isopropylbenzene (Cumene)	-	1300 U	1000 U	5 U	500 U	1000 U	500 U	5 U	200 U	5 U	80 U	25 U	50 U	50 U	5 U	50 U	100 U	50 U	5 U	5 U	1000 U	5000 U	130 U	2500 U	5000 U	5 U	
M-Dichlorobenzene	-	1300 U	1000 U	5 U	500 U	1000 U	500 U	5 U	200 U	5 U	80 U	25 U	50 U	50 U	5 U	50 U	100 U	50 U	5 U	5 U	1000 U	5000 U	130 U	2500 U	5000 U	5 U	
Methyl Acetate	-	1300 U	1000 U	5 U	500 U	1000 U	500 U	5 U	200 U	5 U	80 U	25 U	50 U	50 U	5 U	50 U	100 U	50 U	5 U	5 U	1000 U	5000 U	130 U	2500 U	5000 U	5 U	
Methyl Ethyl Ketone (2-Butanone)	-	2500 U	2000 U	10 U	1000 U																						

Table 2. Analytical Results - 2014 - 2018

OMC Plant 2 Site (OU4)
Waukegan, Illinois

	MCL ^a	MW-605D 6/6/2016	MW-605D 9/27/2016	MW-605D 12/19/2016	MW-605D 3/28/2018	MW-605D 8/23/2018	MW-606S 1/30/2014	MW-606S 4/21/2014	MW-606S 9/9/2014	MW-606S 12/4/2014	MW-606S 3/19/2015	MW-606S 6/24/2015	MW-606S 6/7/2016	MW-606S 9/27/2016	MW-606S 12/20/2016	MW-606S 3/28/2018	MW-606S 8/22/2018	MW-606D 1/30/2014	MW-606D 4/22/2014	MW-606D 3/19/2015	MW-606D 6/24/2015	MW-606D 6/7/2016	MW-606D 9/27/2016	MW-606D 12/20/2016	MW-606D 3/28/2018	MW-606D 8/22/2018			
Polychlorinated Biphenyls (PCBs)																													
PCB-1016 (Arochlor 1016)	-	--	--	--	--	--	1 U	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U	1 UJ	1 U	1 U	--	--	--	--	--	--			
PCB-1242 (Arochlor 1242)	-	--	--	--	--	--	1 U	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U	1 UJ	1 U	1 U	--	--	--	--	--	--			
PCB-1248 (Arochlor 1248)	-	--	--	--	--	--	1 U	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U	1 UJ	1 U	1 U	--	--	--	--	--	--			
PCB-1260 (Arochlor 1260)	-	--	--	--	--	--	1 U	1 U	1 U	1 U	1 U	--	--	--	--	--	1 U	1 UJ	1 U	1 U	--	--	--	--	--	--			
Volatile Organic Compounds																													
1,1,1-Trichloroethane	200	50 U	500 U	200 U	5 U	200 U	10 U	5 U	20 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	1000 U	500 U	500 U	500 R	5 U	5 U						
1,1,2,2-Tetrachloroethane	-	50 U	500 U	200 U	5 U	200 U	10 U	5 U	20 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	1000 U	500 U	500 U	500 R	5 U	5 U						
1,1,2-Trichloroethane	5	50 U	500 U	200 U	5 U	200 U	10 U	5 U	20 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	1000 U	500 U	500 U	500 R	5 U	5 U						
1,1-Dichloroethane	-	50 U	500 U	200 U	5 U	200 U	10 U	5 U	4.9 J	50 U	50 U	5 U	5 U	5 U	5 U	5 U	500 U	1000 U	500 U	500 U	500 R	5 U	5 U						
1,1-Dichloroethylene	7	50 U	500 U	200 U	20	200 U	10 UJ	5 U	4.3 J	9.7 J	50 U	5 U	5 U	5 U	5 U	5 U	500 U	1000 U	500 U	6.8	500 U	500 U	500 R	5 U	5 U				
1,2,4-Trichlorobenzene	70	50 U	500 U	200 U	5 U	200 U	10 U	5 U	20 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	1000 U	500 U	500 U	500 R	5 U	5 U						
1,4-Dichlorobenzene	75	50 U	500 U	200 U	5 U	200 U	10 U	5 U	20 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	1000 U	500 U	500 U	500 R	5 U	5 U						
1,4-Dioxane (P-Dioxane)	-	--	--	--	--	--	200 U	100 R	1000 R	--	--	--	--	--	--	--	10000 U	20000 R	10000 R	--	--	--	--	--	--	--			
Acetone	-	100 U	1000 U	400 U	10 U	400 U	20 U	150	40 U	200 U	92	5 J	10 U	10 U	10 UJ	5.3 J	1000 U	2000 U	2000 U	89 J+	1000 U	1000 U	1000 R	2.3 J	91 J+				
Benzene	5	50 U	500 U	200 U	5 U	200 U	10 U	5 U	20 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	1000 U	500 U	500 U	500 R	5 U	5 U						
Carbon Disulfide	-	50 U	500 U	200 U	5 U	200 U	10 U	5 U	20 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	1000 U	500 U	500 U	500 R	5 U	5 U						
Chlorinated Fluorocarbon (Freon 113)	-	50 U	500 U	200 U	5 U	200 U	10 U	5 U	20 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	1000 U	500 U	500 U	500 R	5 U	5 U						
Chloroethane	-	50 U	500 U	200 U	5 U	200 U	10 U	5 U	20 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	1000 U	500 U	500 U	500 R	5 U	5 U						
Chloroform ^b	80	50 U	500 U	200 U	10	200 U	10 U	5 U	20 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	1000 U	500 U	500 U	500 R	5 U	5 U						
Chloromethane	-	50 U	500 U	200 U	5 U	200 U	10 U	5 U	20 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	1000 U	500 U	500 U	500 R	5 U	5 U						
Cis-1,2-Dichloroethylene	70	66000	62000	58,000.00	45000	56,000.00	6500	78 J	1400	1500	320	43	100	21	6.4	97 J	20000	28000 J	15000	14000	7700 J+	8700	8300 J-	5800	1,300.00				
Dichloromethane	5	50 U	500 U	200 U	5 U	200 U	10 U	5 U	20 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	1000 U	500 U	500 U	500 R	5 U	5 U						
Ethylbenzene	700	50 U	500 U	200 U	5 U	200 U	10 U	5 U	20 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	1000 U	500 U	500 U	500 R	5 U	5 U						
Isopropylbenzene (Cumene)	-	50 U	500 U	200 U	5 U	200 U	10 U	5 U	20 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	1000 U	500 U	500 U	500 R	5 U	5 U						
M-Dichlorobenzene	-	50 U	500 U	200 U	5 U	200 U	10 U	5 U	20 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	1000 U	500 U	500 U	500 R	5 U	5 U						
Methyl Acetate	-	50 U	500 U	200 U	5 U	200 U	10 U	5 U	20 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U	500 U	1000 U	500 U	500 U	500 R	5 U	5 U						
Methyl Ethyl Ketone (2-Butanone)	-	100 U	1000 U	400 U	10 U	400 U	20 U	10 U	40 U	100 U	100 U	5.3 J	10 U	10 U	10 UJ	10 U	1000 U	2000 U	1000 U	1000 U	1000 R	10 U	120 J+						
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	-	100 U	1000 U	400 U	10 U	400 U	20 U	10 U	40 U	100 U	100 U	10 U	10 U	10 U	10 U	10 U	1000 U	2000 U	1000 U	1000 U	1000 R	10 U	10 U						
Methyl N-Butyl Ketone	-	100 U	1000 U	400 U	10 U																								

Table 2. Analytical Results - 2014 - 2018

OMC Plant 2 Site (OU4)
Waukegan, Illinois

	MCL ^a	MW-607S 1/29/2014	MW-607S 4/21/2014	MW-607S 9/10/2014	MW-607S 12/4/2014	MW-607S 3/18/2015	MW-607S 6/24/2015	MW-607S 6/7/2016	MW-607S 9/27/2016	MW-607S 12/20/2016	MW-607S 3/28/2018	MW-607D 8/22/2018	MW-607D 1/29/2014	MW-607D 4/21/2014	MW-607D 6/25/2015	MW-607D 6/7/2016	MW-607D 9/27/2016	MW-607D 12/20/2016	MW-607D 3/28/2018	MW-608S 8/22/2018	MW-608S 4/23/2014	MW-608S 9/11/2014	MW-608S 12/3/2014	MW-608D 4/23/2014	MW-609S 4/22/2014	MW-609S 9/8/2014
Polychlorinated Biphenyls (PCBs)																										
PCB-1016 (Arochlor 1016)	-	1 U	1 U	1 U	1 U	1 U	1 U	--	--	--	--	1 U	1 UJ	1 U	--	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PCB-1242 (Arochlor 1242)	-	1 U	1 U	1 U	1 U	1 U	1 U	--	--	--	--	1 U	1 UJ	1 U	--	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PCB-1248 (Arochlor 1248)	-	1 U	1 U	1 U	1 U	1 U	1 U	--	--	--	--	1 U	1 UI	1 U	--	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PCB-1260 (Arochlor 1260)	-	1 U	1 U	1 U	1 U	1 U	1 U	--	--	--	--	1 U	1 UJ	1 U	--	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Volatile Organic Compounds																										
1,1,1-Trichloroethane	200	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	2000 U	5 U	5000 U	500 U	200 U	5 U	5 U	13 U	10 U	100 U	5 U	5 U	5 U	
1,1,2,2-Tetrachloroethane	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	2000 U	3.1 J	5000 U	500 U	200 U	5 U	5 U	13 U	10 U	100 U	5 U	5 U	5 U	
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	2000 U	1.1 J	5000 U	500 U	200 U	5 U	5 U	13 U	10 U	100 U	5 U	5 U	5 U	
1,1-Dichloroethane	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	2000 U	5.1	5000 U	500 U	200 U	6.6	8.4	13 U	10 U	100 U	5 U	5 U	5 U	
1,1-Dichloroethylene	7	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4000 UJ	1200 J	20000 J+	5000 U	420 J	370	570 J	1100 J	9 J	6.4 J	100 U	5 U	5 U	5 U	
1,2,4-Trichlorobenzene	70	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	2000 U	5 U	5000 U	500 U	200 U	5 U	5 U	13 U	10 U	100 U	5 U	5 U	5 U	
1,4-Dichlorobenzene	75	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	2000 U	5 U	5000 U	500 U	200 U	5 U	5 U	13 U	10 U	100 U	5 U	5 U	5 U	
1,4-Dioxane (P-Dioxane)	-	100 U	100 R	100 R	100 R	--	--	--	--	--	--	80000 U	40000 R	--	--	--	--	--	--	250 R	200 R	2000 R	100 R	100 R	100 R	
Acetone	-	10 U	6.3 J	20 U	20 U	10 U	10 U	10 U	10 U	10 U	3.6 J	8000 U	4000 U	230	10000 U	1000 U	400 U	5.4 J-	10 R	25 U	40 U	400 U	10 U	10 U	10 U	
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	2000 U	4.7 J	5000 U	500 U	200 U	3.4 J	4.4 J	13 U	10 U	100 U	5 U	5 U	5 U	
Carbon Disulfide	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	2000 U	12	5000 U	500 U	200 U	1.3 J	2.8 J	13 U	10 U	100 U	5 U	5 U	5 U	
Chlorinated Fluorocarbon (Freon 113)	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	2000 U	5 U	5000 U	500 U	200 U	2.1 J	5 U	13 U	10 U	100 U	5 U	5 U	5 U	
Chloroethane	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	2000 U	5 U	5000 U	500 U	200 U	5 U	5 U	13 U	10 U	100 U	5 U	5 U	5 U	
Chloroform ^b	80	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	2000 U	5 U	5000 U	500 U	200 U	6.4	5 U	13 U	1.5 U	100 U	5 U	5 U	5 U	
Chloromethane	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	2000 U	5 U	5000 U	500 U	200 U	5 U	5 U	13 U	10 U	100 U	5 U	5 U	5 U	
Cis-1,2-Dichloroethylene	70	54	61 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1.4 J	85000	110000 J	96500 J+	110000	220000	280,000.00	150000	170,000.00	370 J	440	510	5 U	9.7 J	26	
Dichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	2000 U	5 U	5000 U	500 U	200 U	5 U	5 U	13 U	20 U	100 U	5 U	5 U	5 U	
Ethylbenzene	700	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	2000 U	5 U	5000 U	500 U	200 U	5 U	5 U	13 U	10 U	100 U	5 U	5 U	5 U	
Isopropylbenzene (Cumene)	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	2000 U	5 U	5000 U	500 U	200 U	5 U	5 U	13 U	10 U	100 U	5 U	5 U	5 U	
M-Dichlorobenzene	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	2000 U	5 U	5000 U	500 U	200 U	5 U	5 U	13 U	10 U	100 U	5 U	5 U	5 U	
Methyl Acetate	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	2000 U	5 U	5000 U	500 U	200 U	5 U	5 U	13 U	10 U	100 U	5 U	5 U	5 U	
Methyl Ethyl Ketone (2-Butanone)	-	10 U	10 U	10 U	10 U	10 U	8000 U	4000 U	10 U	10000 U	1000 U	400 U	10 UJ	10 R	25 U	20 U	200 U	10 U	10 U	10 U						
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	-	10 U	10 U	10 U	10 U	10 U	8000 U	4000 U	1.9 J	10000 U	1000 U	400 U	10 U	1.4 J	25 U	20 U	200 U	10 U	10 U	10 U						
Methyl N																										

Table 2. Analytical Results - 2014 - 2018

OMC Plant 2 Site (OU4)
Waukegan, Illinois

	MCL ^a	MW-609S 12/3/2014	MW-609S 3/19/2015	MW-609S 6/22/2015	MW-609D 4/22/2014	MW-609D 9/8/2014	MW-609D 12/3/2014	MW-609D 3/16/2015	MW-609D 6/22/2015	MW-610S 2/4/2014	MW-610S 4/24/2014	MW-610S 9/9/2014	MW-610S 12/1/2014	MW-610S 3/16/2015	MW-610S 6/22/2015	MW-610S 6/8/2016	MW-610S 9/28/2016	MW-610S 12/20/2016	MW-610S 3/29/2018	MW-610S 8/21/2018	MW-610D 2/4/2014	MW-610D 4/24/2014	MW-610D 9/9/2014	MW-610D 12/1/2014	MW-610D 3/16/2015	MW-610D 6/22/2015	
Polychlorinated Biphenyls (PCBs)																											
PCB-1016 (Arochlor 1016)	-	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
PCB-1242 (Arochlor 1242)	-	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
PCB-1248 (Arochlor 1248)	-	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
PCB-1260 (Arochlor 1260)	-	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
Volatile Organic Compounds																											
1,1,1-Trichloroethane	200	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	25 U	10 U	50 U	50 U	5 U	5 U	
1,1,2,2-Tetrachloroethane	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	25 U	10 U	50 U	50 U	5 U	5 U	
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	25 U	10 U	50 U	50 U	5 U	5 U	
1,1-Dichloroethane	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	25 U	10 U	50 U	50 U	5 U	5 U	
1,1-Dichloroethylene	7	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	25 U	10 U	50 U	50 U	5 U	5 U	
1,2,4-Trichlorobenzene	70	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	25 U	10 U	50 U	50 U	5 U	5 U	
1,4-Dichlorobenzene	75	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	25 U	10 U	50 U	50 U	5 U	5 U	
1,4-Dioxane (P-Dioxane)	-	100 R	100 R	--	100 R	100 R	100 R	100 R	100 R	--	100 U	100 R	100 R	100 R	--	--	--	--	--	200 U	500 R	200 R	1000 R	--	--	--	
Acetone	-	20 U	20 U	10 U	10 U	20 U	20 U	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U	50 U	20 U	200 U	200 U	10 U	10 U	
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	25 U	10 U	50 U	50 U	5 U	5 U	
Carbon Disulfide	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	25 U	10 U	50 U	50 U	5 U	5 U	
Chlorinated Fluorocarbon (Freon 113)	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	25 U	10 U	50 U	50 U	5 U	5 U	
Chloroethane	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	25 U	10 U	50 U	50 U	5 U	5 U	
Chloroform ^b	80	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	25 U	10 U	50 U	50 U	5 U	5 U	
Chloromethane	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	25 U	10 U	50 U	50 U	5 U	5 U	
Cis-1,2-Dichloroethylene	70	30	29	30	5 U	5 U	5 U	5 U	86	110 J	100	73	51	42	59	97	64	15	10	530	480 J	370	1000	1100	630	630	
Dichloromethane	5	5 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U	25 U	10 U	50 U	100 U	5 U	5 U	
Ethylbenzene	700	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	25 U	10 U	50 U	50 U	5 U	5 U	
Isopropylbenzene (Cumene)	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	25 U	10 U	50 U	50 U	5 U	5 U	
M-Dichlorobenzene	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	25 U	10 U	50 U	50 U	5 U	5 U	
Methyl Acetate	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	25 U	10 U	50 U	50 U	5 U	5 U	
Methyl Ethyl Ketone (2-Butanone)	-	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U	50 U	20 U	100 U	100 U	10 U	10 U	
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	-	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U	50 U	20 U	100 U	100 U	10 U	10 U	
Methyl N-Butyl Ketone	-	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U	50 U	20 U	100 U	1			

Table 2. Analytical Results - 2014 - 2018
 OMC Plant 2 Site (OU4)
 Waukegan, Illinois

	MCL ^a	MW-610D 6/8/2016	MW-610D 9/28/2016	MW-610D 12/20/2016	MW-610D 3/29/2018	MW-610D 8/21/2018	MW-611S 2/3/2014	MW-611D 4/25/2014	MW-611D 2/3/2014	MW-612S 4/25/2014	MW-612S 4/23/2014	MW-612S 9/11/2014	MW-612S 12/3/2014	MW-612S 3/19/2015	MW-612S 6/23/2015	MW-612S 6/6/2016	MW-612S 9/26/2016	MW-612S 12/20/2016	MW-612S 3/27/2018	MW-612S 8/22/2018	MW-612D 4/23/2014	MW-612D 9/11/2014	MW-612D 12/3/2014	MW-612D 3/18/2015	MW-612D 6/23/2015	MW-612D 6/6/2016
Polychlorinated Biphenyls (PCBs)																										
PCB-1016 (Arochlor 1016)	-	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	10 U	1 U	1 U	1 U	--	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	--	
PCB-1242 (Arochlor 1242)	-	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	10 U	1 U	1 U	1 U	--	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	--	
PCB-1248 (Arochlor 1248)	-	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	10 J	1 U	1 U	1 U	--	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	--	
PCB-1260 (Arochlor 1260)	-	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	10 U	1 U	1 U	1 U	--	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	--	
Volatile Organic Compounds																										
1,1,1-Trichloroethane	200	500 U	500 U	200 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	80 U	50 U	200 U	250 U	5 U	50 U	
1,1,2,2-Tetrachloroethane	-	500 U	500 U	200 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	80 U	50 U	200 U	250 U	5 U	50 U	
1,1,2-Trichloroethane	5	500 U	500 U	200 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	80 U	50 U	200 U	250 U	5 U	50 U	
1,1-Dichloroethane	-	500 U	500 U	200 U	5.9	250 U	5 U	5 U	5 U	0.23 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	80 U	50 U	200 U	250 U	5 U	50 U	
1,1-Dichloroethylene	7	500 U	500 U	200 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	280 J	76	72 J	250 U	51	50 U	
1,2,4-Trichlorobenzene	70	500 U	500 U	200 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	80 U	50 U	200 U	250 U	5 U	50 U	
1,4-Dichlorobenzene	75	500 U	500 U	200 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	80 U	50 U	200 U	250 U	5 U	50 U	
1,4-Dioxane (P-Dioxane)	-	--	--	--	--	--	100 U	100 R	100 R	100 R	100 R	100 R	100 R	100 R	--	--	--	--	--	1600 R	1000 R	4000 R	5000 R	--	--	
Acetone	-	1000 U	1000 U	400 U	10 U	500 U	10 U	260	10 U	10 U	20 U	20 U	20 U	10 UJ	10 U	10 U	10 U	10 U	3.7 J	160 U	900	1600 U	1000 U	350 J+	100 U	
Benzene	5	500 U	500 U	200 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	80 U	50 U	200 U	250 U	5 U	50 U	
Carbon Disulfide	-	500 U	500 U	200 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	80 U	50 U	200 U	250 U	5 U	50 U	
Chlorinated Fluorocarbon (Freon 113)	-	500 U	500 U	200 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	80 U	50 U	200 U	250 U	5 U	50 U	
Chloroethane	-	500 U	500 U	200 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	80 U	50 U	200 U	250 U	5 U	50 U	
Chloroform ^b	80	500 U	500 U	200 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.9	5 U	2.7 J	5 U	5 U	80 U	3.4 U	200 U	250 U	5 U	50 U	
Chloromethane	-	500 U	500 U	200 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	80 U	50 U	200 U	250 U	5 U	50 U	
Cis-1,2-Dichloroethylene	70	500 U	340 J	400.00	3200	4600	5 U	5 U	12	13 J	300 J	39	10	5.4	5.6	5 U	1.4 J	5 U	1.4 J	5 U	2200 J	5200	3300	4800	2800	630 J+
Dichloromethane	5	500 U	500 U	200 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	80 U	100 U	200 U	500 U	5 U	50 U	
Ethylbenzene	700	500 U	500 U	200 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	80 U	50 U	200 U	250 U	5 U	50 U	
Isopropylbenzene (Cumene)	-	500 U	500 U	200 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	80 U	50 U	200 U	250 U	5 U	50 U	
M-Dichlorobenzene	-	500 U	500 U	200 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	80 U	50 U	200 U	250 U	5 U	50 U	
Methyl Acetate	-	500 U	500 U	200 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	3 J	80 U	50 U	200 U	250 U	5 U	50 U	
Methyl Ethyl Ketone (2-Butanone)	-	1000 U	1000 U	400 U	10 U	500 U	10 U	18	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	160 U	130	200 J	500 U	54 J+	100 U	
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	-	1000 U	1000 U	400 U	10 U	500 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	160 U	100 U	400 U	500 U	10 U	100 U	
Methyl N-Butyl Ketone	-	1000 U	1000 U	400 U	10 U	500 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	160 U	100 U	400 U	500 U	10 U	100 U	
Tetrachloroethylene (PCE)	5	500 U	50																							

Table 2. Analytical Results - 2014 - 2018

OMC Plant 2 Site (OU4)
Waukegan, Illinois

	MCL ^a	MW-619S 4/21/2014	MW-619S 9/10/2014	MW-619S 12/3/2014	MW-619S 3/19/2015	MW-619S 6/25/2015	MW-619S 6/7/2016	MW-619S 9/26/2016	MW-619S 12/20/2016	MW-619S 3/28/2018	MW-619S 8/22/2018	MW-619D 4/21/2014	MW-619D 9/10/2014	MW-619D 12/3/2014	MW-619D 3/19/2015	MW-619D 6/25/2015	MW-619D 6/7/2016	MW-619D 9/26/2016	MW-619D 12/20/2016	MW-619D 3/28/2018	MW-619D 8/22/2018	MW-620S 4/25/2014	MW-620S 9/11/2014	MW-620S 12/3/2014	MW-620S 3/19/2015	MW-620S 6/25/2015		
Polychlorinated Biphenyls (PCBs)																												
PCB-1016 (Arochlor 1016)	-	1 UJ	1 U	1 U	1 U	1 U	--	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--	1 U	1 U	1 U	1 U	1 U			
PCB-1242 (Arochlor 1242)	-	1 UJ	1 U	1 U	1 U	1 U	--	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--	1 U	1 U	1 U	1 U	1 U			
PCB-1248 (Arochlor 1248)	-	1 UJ	1 U	1 U	1 U	1 U	--	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--	1 U	1 U	1 U	1 U	1 U			
PCB-1260 (Arochlor 1260)	-	1 UJ	1 U	1 U	1 U	1 U	--	--	--	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--	1 U	1 U	1 U	1 U	1 U			
Volatile Organic Compounds																												
1,1,1-Trichloroethane	200	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 R	5 U	5 U	20 U	5 U	50 U	130 U	5 U						
1,1,2,2-Tetrachloroethane	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 R	5 U	5 U	20 U	5 U	50 U	130 U	5 U						
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 R	5 U	5 U	20 U	5 U	50 U	130 U	5 U						
1,1-Dichloroethane	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 R	5 U	5 U	20 U	5 U	50 U	130 U	5 U						
1,1-Dichloroethylene	7	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.78 J	5 U	5 U	5 R	5 U	5 U	20 U	2.5 J	10 J	33 J	5 U			
1,2,4-Trichlorobenzene	70	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 R	5 U	5 U	20 U	5 U	50 U	130 U	5 U						
1,4-Dichlorobenzene	75	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 R	5 U	5 U	20 U	5 U	50 U	130 U	5 U						
1,4-Dioxane (P-Dioxane)	-	100 R	100 R	100 R	100 R	--	--	--	--	--	100 R	100 R	100 R	--	--	--	--	--	--	400 R	100 R	1000 R	2500 R	--				
Acetone	-	6.7 J	10 U	20 U	20 U	10 U	10 U	10 U	10 U	4.5 J	10 U	310	170	33	10 U	10 U	10 U	10 U	2.7 J	7.6 J	40 U	10 U	200 U	500 U	10 U			
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 R	5 U	5 U	20 U	5 U	50 U	130 U	5 U						
Carbon Disulfide	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 J	5 U	0.67 J	5 U	5 U	5 U	20 U	5 U	50 U	130 U	5 U				
Chlorinated Fluorocarbon (Freon 113)	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 R	5 U	5 U	20 U	5 U	50 U	130 U	5 U						
Chloroethane	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 R	5 U	5 U	20 U	5 U	50 U	130 U	5 U						
Chloroform ^b	80	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 R	5 U	5 U	20 U	0.72 U	50 U	130 U	5 U						
Chloromethane	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 R	5 U	5 U	20 U	5 U	50 U	130 U	5 U						
Cis-1,2-Dichloroethylene	70	9.2 J	24	8.1	4 J	2.2 J	5 U	2 J	5 U	1.4 J	5 U	36	40	32	13	10	12	9.3 J-	8.3	10	670 J	430	990	2600	540			
Dichloromethane	5	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 R	5 U	5 U	20 U	10 U	50 U	250 U	5 U						
Ethylbenzene	700	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 R	5 U	5 U	20 U	5 U	50 U	130 U	5 U						
Isopropylbenzene (Cumene)	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 R	5 U	5 U	20 U	5 U	50 U	130 U	5 U						
M-Dichlorobenzene	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 R	5 U	5 U	20 U	5 U	50 U	130 U	5 U						
Methyl Acetate	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 R	5 U	5 U	20 U	5 U	50 U	130 U	5 U						
Methyl Ethyl Ketone (2-Butanone)	-	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	40	31	6.6 J	2 J	10 U	10 U	10 R	10 U	10 U	250 U	10 U							
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	-	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 R	10 U	10 U	10 U	10 U	100 U	250 U	10 U										
Methyl N-Butyl Ketone	-	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 R	10 U	10 U	10 U	10 U	100 U	250 U	10 U										
Tetrachloroethylene (PCE)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 R	5 U	5 U	20 U	5 U	50 U	130 U	5 U						
Toluene	1000	5 U	5 U	5 U																								

Table 2. Analytical Results - 2014 - 2018
OMC Plant 2 Site (OU4)
Waukegan, Illinois

^a Maximum Contaminant Level, EPA National Primary Drinking

^b MCL is for Total Trihalomethanes, includes the individual trihalomethanes (bromodichloromethane, chlorodibromomethane, chloroform,

^c MCL is for Total Xylenes, includes m,p-Xylene and o-Xylene; the MCL for total Xylenes was considered an evaluation surrogate.

U indicates the analyte was not detected above the reported
UJ indicates the analyte was not detected above the QL and the QL is

0.5 indicates the analyte was not detected above the QL and the QL is approximate.

J indicates the result is an estimated quantity.

J+ indicates the result is an estimated quantity, biased high.

R indicates the result is rejected.

$\mu\text{g/L}$ = microgram per liter

- = no criteria

Bold indicates the detected concentration

Shaded cell indicates concentration exceed criteria

^c MCI is for Total Xylenes, in

MCE is for Total Xylenes, includes m,p-Xylene

Table 2. Analytical Results - 2014 - 2018

OMC Plant 2 Site (OU4)
Waukegan, Illinois

	ST-MW-2S MCL ^a 3/30/2018	ST-MW-2S 8/21/2018	ST-MW-2D 6/8/2016	ST-MW-2D 9/28/2016	ST-MW-2D 12/21/2016	ST-MW-2D 3/30/2018	ST-MW-3S 8/21/2018	ST-MW-3S 6/7/2016	ST-MW-3S 9/28/2016	ST-MW-3S 12/21/2016	ST-MW-3S 3/29/2018	ST-MW-3D 8/21/2018	ST-MW-3D 6/7/2016	ST-MW-3D 9/28/2016	ST-MW-3D 12/21/2016	ST-MW-3D 3/29/2018	ST-MW-3D 8/21/2018
Polychlorinated Biphenyls (PCBs)																	
PCB-1016 (Arochlor 1016)	-	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
PCB-1242 (Arochlor 1242)	-	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.24 J	1 U	1 U		
PCB-1248 (Arochlor 1248)	-	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
PCB-1260 (Arochlor 1260)	-	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Volatile Organic Compounds																	
1,1,1-Trichloroethane	200	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
1,1,2,2-Tetrachloroethane	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
1,1-Dichloroethane	-	5 U	5 U	5 U	5 U	5 U	5 U	2.3 J	1.8 J	1.3 J	5 U	5 U	5 U	5 U	5 U	5 U	
1,1-Dichloroethylene	7	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
1,2,4-Trichlorobenzene	70	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
1,4-Dichlorobenzene	75	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
1,4-Dioxane (P-Dioxane)	-	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Acetone	-	10 U	4.6 J	10 U	10 U	10 U	5.6 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	4.9 J	
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Carbon Disulfide	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Chlorinated Fluorocarbon (Freon 113)	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Chloroethane	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Chloroform ^b	80	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Chloromethane	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Cis-1,2-Dichloroethylene	70	5 U	5 U	5 U	2.8 J	5 U	5 U	3.7 J	1.9 J	1.8 J	5 U	5 U	5 U	5 U	5 U	5 U	
Dichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Ethylbenzene	700	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Isopropylbenzene (Cumene)	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
M-Dichlorobenzene	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Methyl Acetate	-	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Methyl Ethyl Ketone (2-Butanone)	-	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	-	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	
Methyl N-Butyl Ketone	-	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	
Tetrachloroethylene (PCE)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2.2 J	5 U	5 U	5 U	5 U	
Toluene	1000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Trans-1,2-Dichloroethene	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Trichloroethylene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6	5 U	5 U	5 U	5 U	
Vinyl Chloride	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Xylene, O (1,2-Dimethylbenzene) ^c	10,000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Xylene, M&P (Sum of isomers) ^c	10000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Wet Chemistry																	
Chloride	-	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Total Organic Carbon	-	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

Notes:

^a Maximum Contaminant Level, EPA National Primary Drinking Water Regulations, EPA 816-F-09-004, May 2009.

^b MCL is for Total Trihalomethanes, includes the individual trihalomethanes (bromodichloromethane, chlorodibromomethane, chloroform, tribromomethane).

^c MCL is for Total Xylenes, includes m,p-Xylene and o-Xylene; the MCL for total Xylenes was considered an evaluation surrogate.

U indicates the analyte was not detected above the reported

QL indicates the analyte was not detected above the QL and the QL is approximate.

J indicates the result is an estimated quantity.

J+ indicates the result is an estimated quantity, biased high.

R indicates the result is rejected and should not be used.

µg/L = microgram per liter

- = no criteria

Bold indicates the detected concentration

Shaded cell indicates concentration exceed criteria

^c MCL is for Total Xylenes, includes m,p-Xylene and o-Xylene;

Table 2. Analytical Results - 2014 - 2018

OMC Plant 2 Site (OU4)
Waukegan, Illinois

	MCL ^a	W-5 6/7/2016	W-5 9/27/2016	W-5 12/21/2016	W-5 3/28/2018	W-5 8/21/2018
Polychlorinated Biphenyls (PCBs)						
PCB-1016 (Arochlor 1016)	-	1 U	1 U	1 U	1 U	1 U
PCB-1242 (Arochlor 1242)	-	1 U	1 U	1 U	1 U	1 U
PCB-1248 (Arochlor 1248)	-	1 U	1 U	1 U	1 U	1 U
PCB-1260 (Arochlor 1260)	-	1 U	1 U	1 U	1 U	1 U
Volatile Organic Compounds						
1,1,1-Trichloroethane	200	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	-	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	-	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethylene	7	5 U	5 U	5 U	5 U	5 U
1,2,4-Trichlorobenzene	70	5 U	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene	75	5 U	5 U	5 U	5 U	5 U
1,4-Dioxane (P-Dioxane)	-	--	--	--	--	--
Acetone	-	10 U	10 U	10 U	10 U	5.4 J
Benzene	5	5 U	5 U	5 U	5 U	5 U
Carbon Disulfide	-	5 U	5 U	5 U	5 U	5 U
Chlorinated Fluorocarbon (Freon 113)	-	5 U	5 U	5 U	5 U	5 U
Chloroethane	-	5 U	5 U	5 U	5 U	5 U
Chloroform ^b	80	5 U	5 U	5 U	5 U	5 U
Chloromethane	-	5 U	5 U	5 U	5 U	5 U
Cis-1,2-Dichloroethylene	70	5 U	5 U	5 U	5 U	5 U
Dichloromethane	5	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	700	5 U	5 U	5 U	5 U	5 U
Isopropylbenzene (Cumene)	-	5 U	5 U	5 U	5 U	5 U
M-Dichlorobenzene	-	5 U	5 U	5 U	5 U	5 U
Methyl Acetate	-	5 U	5 U	5 U	5 U	5 U
Methyl Ethyl Ketone (2-Butanone)	-	10 U	10 U	10 U	10 U	10 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	-	10 U	10 U	10 U	10 U	10 U
Methyl N-Butyl Ketone	-	10 U	10 U	10 U	10 U	10 U
Tetrachloroethylene (PCE)	5	5 U	5 U	5 U	5 U	5 U
Toluene	1000	5 U	5 U	5 U	5 U	5 U
Trans-1,2-Dichloroethene	100	5 U	5 U	5 U	5 U	5 U
Trichloroethylene	5	5 U	5 U	5 U	5 U	5 U
Vinyl Chloride	2	5 U	5 U	5 U	5 U	5 U
Xylene, O (1,2-Dimethylbenzene) ^c	10,000	5 U	5 U	5 U	5 U	5 U
Xylene, M&P (Sum of isomers) ^c	10000	5 U	5 U	5 U	5 U	5 U
Wet Chemistry						
Chloride	-	--	--	--	--	--
Total Organic Carbon	-	--	--	--	--	--

Notes:

^a Maximum Contaminant Level, EPA National Primary Drinking Water Regulations, EPA 816-F-09-004, May 2009.

^b MCL is for Total Trihalomethanes, includes the individual trihalomethanes (bromodichloromethane, chlorodibromomethane, chloroform, tribromomethane).

^c MCL is for Total Xylenes, includes m,p-Xylene and o-Xylene; the MCL for total Xylenes was considered an evaluation surrogate.

U indicates the analyte was not detected above the reported

UJ indicates the analyte was not detected above the QL and the QL is approximate.

J indicates the result is an estimated quantity.

J+ indicates the result is an estimated quantity, biased high.

R indicates the result is rejected and should not be used.

µg/L = microgram per liter

- = no criteria

Bold indicates the detected concentration

Shaded cell indicates concentration exceed criteria

^c MCL is for Total Xylenes, includes m,p-Xylene and o-Xylene;

Attachment 3

Data Evaluation Methods

Data Evaluation Methods

OMC Plant 2 (Operable Unit 4)

WA No. 237-RARA-0528/Contract No. EP-S5-06-01

April 2014 through August 2018 groundwater data were evaluated to assess if groundwater treatments implemented at the site have reduced concentrations of the volatile organic compound (VOC) contaminants of concern (COCs) at the site. The 2009 Record of Decision for the site established three VOCs as COCs in groundwater, including trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride (U.S. Environmental Protection Agency [EPA] 2009).

Due to changes in the monitoring well network through time and the frequency of monitoring at each well, proxy values (i.e., prior sampling event results) were assigned to those wells with missing concentration data for a given year so that a consistent monitoring well network was used for interpolation of the groundwater concentration data. Nondetect values were assumed to be zero for the purposes of the data analyses, except for the Mann-Kendall analysis as further described in the following section. Field duplicate samples and rejected data were omitted from the analysis.

The groundwater data collected from the site were evaluated using Mann-Kendall statistical analysis and mass estimates. Monitoring well nest MW-600 shallow and deep wells were sampled and reported incorrectly in March 2015. The analytical results were omitted from chlorinated VOC trend analysis. The following sections describe each of these evaluations.

Mann-Kendall Trend Evaluation

The Mann-Kendall test is a nonparametric procedure used to identify whether there is a statistically significant trend over a period of monitoring. The test is based on the idea that a lack of trend should correspond to a time series plot fluctuating randomly about a constant mean level, with no visually apparent upward or downward pattern (EPA 2009). As a nonparametric procedure, the Mann-Kendall test does not require the underlying data to follow a specific distribution. The test compares the relative magnitudes of sample data rather than the data values themselves.

Analytical data reported at less than the reporting or detection limit (nondetects) can be used in the test by assigning them a common value that is smaller than the smaller measured value in the data set (EPA 2009). For this project analysis, a value of 0.01 micrograms per liter was assigned to nondetects.

The Mann-Kendall test statistic (S) is found by counting the number of "concordant observations," where the later-in-time observation has a larger value for the series, and subtracting the number of "discordant observations," where the later-in-time observation has a smaller value for the series. This is done for all pairs of observations in the data set. The total difference is denoted S . Positive values of S indicate an increase in constituent concentrations over time, whereas negative values indicate a decrease in constituent concentrations over time. The strength of the trend is proportional to the magnitude of the S (i.e., the larger the absolute value of S , the stronger the evidence for a real increasing or decreasing trend). Any pair of tied values or any pair of non-detects contribute nothing to S and thus, are given a score of zero.

The calculated probability (p-value) for the Mann-Kendall test represents the probability that any observed trend would occur purely by chance (given the variability and sample size of the data set). A significance level of 0.05, corresponding to a confidence level of 95 percent, was used to test the null hypothesis that there is no trend in the data. The significance level is the probability that a test

erroneously detects a trend when none is present. For a 0.05 significance level, there is a 1-in-20 chance of a conclusion being incorrect when the number of results is quite small. A 0.05 significance level was selected to provide strong evidence against the null hypothesis, thus reducing an erroneous test result. Only p-values less than 0.05 indicate a statistically significant trend. The result could be a significantly increasing or decreasing trend or a nonsignificant result (no trend).

For well-constituent pairs where no trend could be statistically determined at the 95 percent confidence level, concentrations were deemed stable if the coefficient of variation (COV) was less than 1. The COV is a relative measure of variation in the groundwater concentration data and can be affected by the magnitude of concentrations (EPA 2009). As such, relatively higher concentrations can include significant variation while exhibiting a small COV. While there is no objective basis for using a particular value of COV to determine stability, values greater than 1 indicate that the data exhibit a greater detail of scatter about the mean. Values less than or near to a COV of 1 indicate that the data form a relatively close group about the mean value. Therefore, it is surmised that the determination of no trend corresponds to stable concentrations if the COV is less than 1. If the COV is greater than 1, it is possible that the determination of no trend has been adversely influenced by data variability (fluctuating concentrations).

Maintaining statistical validity of the trend analysis requires constraints on the amount of minimum data that can be tested. To ensure a meaningful comparison of concentrations over time, evaluations of trends were performed only for wells with at least six independent sampling events and a detection frequency of greater than 50 percent. The temporal behavior of the concentration data was also examined graphically to confirm the results of the trend analysis. A time-series plot of concentrations was generated for each monitoring well and includes the use of a locally weighted scatter plot smoothing curve to visually show the overall trend in the data (Cleveland 1979).

Mass Estimate Calculations

Total mass estimates and mass for individual VOC compounds (TCE, cis-1,2-DCE, and vinyl chloride) were calculated using the Thiessen polygon method (EPA 1998; Fetter 2004), a spatial integration method that provides an approximation of the dissolved VOC mass present in groundwater. The resultant sitewide mass estimates for individual sampling events are then used to evaluate changes in the mass of total VOCs over time. The approach assumes that the estimated mass can be calculated by multiple polygons of defined area, depth, and concentration. Polygon borders are established at locations halfway between a given well and each well adjacent to it. For wells without adjacent wells on each side (i.e., downgradient monitoring wells), a polygon border of 10 percent is assigned, as shown in Figure 1.

As discussed above, proxy values were assigned to those wells with missing concentration data for a given year so that the same number of polygons can be used for each year's calculation. Therefore, the use of proxy values conservatively overestimates mass values because ongoing/achieved constituent degradation is not accounted for when an older concentration value is used.

The mass for an individual VOC compound in groundwater was calculated by multiplying its concentration measured in a well central to its Thiessen polygon times the pore volume (polygonal area multiplied by the vertical saturated thickness and total porosity [0.3]) within each individual polygon. The vertical saturated thickness and polygon area for each well that was used in the mass calculations can be found in Table A-1. Individual polygon masses are then summed to get the total mass for that VOC compound across the polygon network. When this analysis is conducted for the same set of monitoring locations at different time periods and the results compared, it provides a means to evaluate changes in plume mass through time.

References

- Cleveland, W. S. 1979. "Robust locally weighted regression and smoothing scatterplots." *Journal of the American Statistical Association* 74 (368): 829–836.
- Gilbert, R. O. 1987. *Statistical Methods for Environmental Pollution Monitoring*. Wiley, New York.
- Fetter, C. W. 2004. *Applied Hydrogeology, Fourth Addition*. Merrill Publishing Company. Pp. 75, 76.
- U.S. Environmental Protection Agency (EPA). 1998. *Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water*. EPA/600/R-98/128. September.
- U.S. Environmental Protection Agency (EPA). 2009. *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities: Unified Guidance*. EPA-530-R-09-007. Office of Resource Conservation and Recovery, U.S. Environmental Protection Agency. March.

Table 1. Thiessen Input File

Attachment 2- Data Evaluation Methods

Technical Memorandum 2018 Evaluation of Monitoring Results

OMC Plant 2 Site (Operable Unit 4), Waukegan, Illinois

Well Number	X-Coordinate	Y-Coordinate	Ground Elevation ^a	~Top of Screened Interval (ft bgs)	~Bottom of Screened Interval (ft bgs)	Aquifer	Depth to Water (ft bgs)	Saturated Thickness Represented by Well	Elevation of Beginning Surface	Polygon Area (sq ft)
				1	10			1	9	
MW-011S	1122898.046	2077246.271	584.5200	1	10	Shallow	1	9	583.52	26931.20
MW-011D	1122902.936	2077245.328	584.5200	10	25	Deep	1	15	574.52	26931.20
MW-513S	1122453.985	2077397.318	584.5200	1	10	Shallow	1	9	583.52	62134.30
MW-513D	1122454.081	2077401.569	584.5200	10	25	Deep	1	15	574.52	62134.30
MW-528S	1122677.116	2077360.259	584.5200	1	10	Shallow	1	9	583.52	44188.90
MW-528D	1122677.247	2077357.592	584.5200	10	25	Deep	1	15	574.52	44188.90
MW-600S	1122322.19	2078035.144	584.5200	1	10	Shallow	1	9	583.52	84509.40
MW-600D	1122319.458	2078035.339	584.5200	10	25	Deep	1	15	574.52	84509.40
MW-601S	1122516.771	2078149.358	584.5200	1	10	Shallow	1	9	583.52	110396.00
MW-601D	1122516.64	2078152.436	584.5200	10	25	Deep	1	15	574.52	110396.00
MW-603S	1122479.709	2077893.004	584.5200	1	10	Shallow	1	9	583.52	48034.20
MW-603D	1122475.155	2077892.546	584.5200	10	25	Deep	1	15	574.52	48034.20
MW-604S	1122616.502	2077890.212	584.5200	1	10	Shallow	1	9	583.52	49472.10
MW-604D	1122612.028	2077889.617	584.5200	10	25	Deep	1	15	574.52	49472.10
MW-605S	1122769.638	2077970.659	584.5200	1	10	Shallow	1	9	583.52	63294.60
MW-605D	1122765.562	2077970.516	584.5200	10	25	Deep	1	15	574.52	63294.60
MW-606S	1122797.756	2077809.417	584.5200	1	10	Shallow	1	9	583.52	52336.60
MW-606D	1122793.213	2077810.132	584.5200	10	25	Deep	1	15	574.52	52336.60
MW-607S	1122926.595	2077780.598	584.5200	1	10	Shallow	1	9	583.52	38258.00
MW-607D	1122921.865	2077780.375	584.5200	10	25	Deep	1	15	574.52	38258.00
MW-610S	1122798.534	2077422.271	584.5200	1	10	Shallow	1	9	583.52	55605.00
MW-610D	1122794.964	2077423.291	584.5200	10	25	Deep	1	15	574.52	55605.00
MW-613S	1122123.366	2077934.058	584.5200	1	10	Shallow	1	9	583.52	78664.80
MW-613D	1122119.26	2077935.421	584.5200	10	25	Deep	1	15	574.52	78664.80
MW-615S	1122302.704	2077734.965	584.5200	1	10	Shallow	1	9	583.52	98986.40
MW-615D	1122298.379	2077735.077	584.5200	10	25	Deep	1	15	574.52	98986.40
MW-619S	1123035.72	2077787.69	584.5200	1	10	Shallow	1	9	583.52	21350.50
MW-619D	1123033.376	2077787.8	584.5200	10	25	Deep	1	15	574.52	21350.50
MW-620S	1123004.243	2077503.354	584.5200	1	10	Shallow	1	9	583.52	43374.20
MW-620D	1123001.731	2077503.214	584.5200	10	25	Deep	1	15	574.52	43374.20
ST-MW-4S	1121894.144	2077879.512	584.5200	1	10	Shallow	1	9	583.52	33180.50
ST-MW-4D	1121894.144	2077879.512	584.5200	10	25	Deep	1	15	574.52	33180.50
ST-MW-5S	1122498.06	2078550.43	584.5200	1	10	Shallow	1	9	583.52	59542.10
ST-MW-5D	1122493.56	2078550.7	584.5200	10	25	Deep	1	15	574.52	59542.10

Notes:

ft bgs = feet below ground surface, sq ft = square feet

^aAn average ground elevation was used to represent all monitoring wells onsite.

Coordinate system is in NAD 83 IL SPC E and NAVD 88.

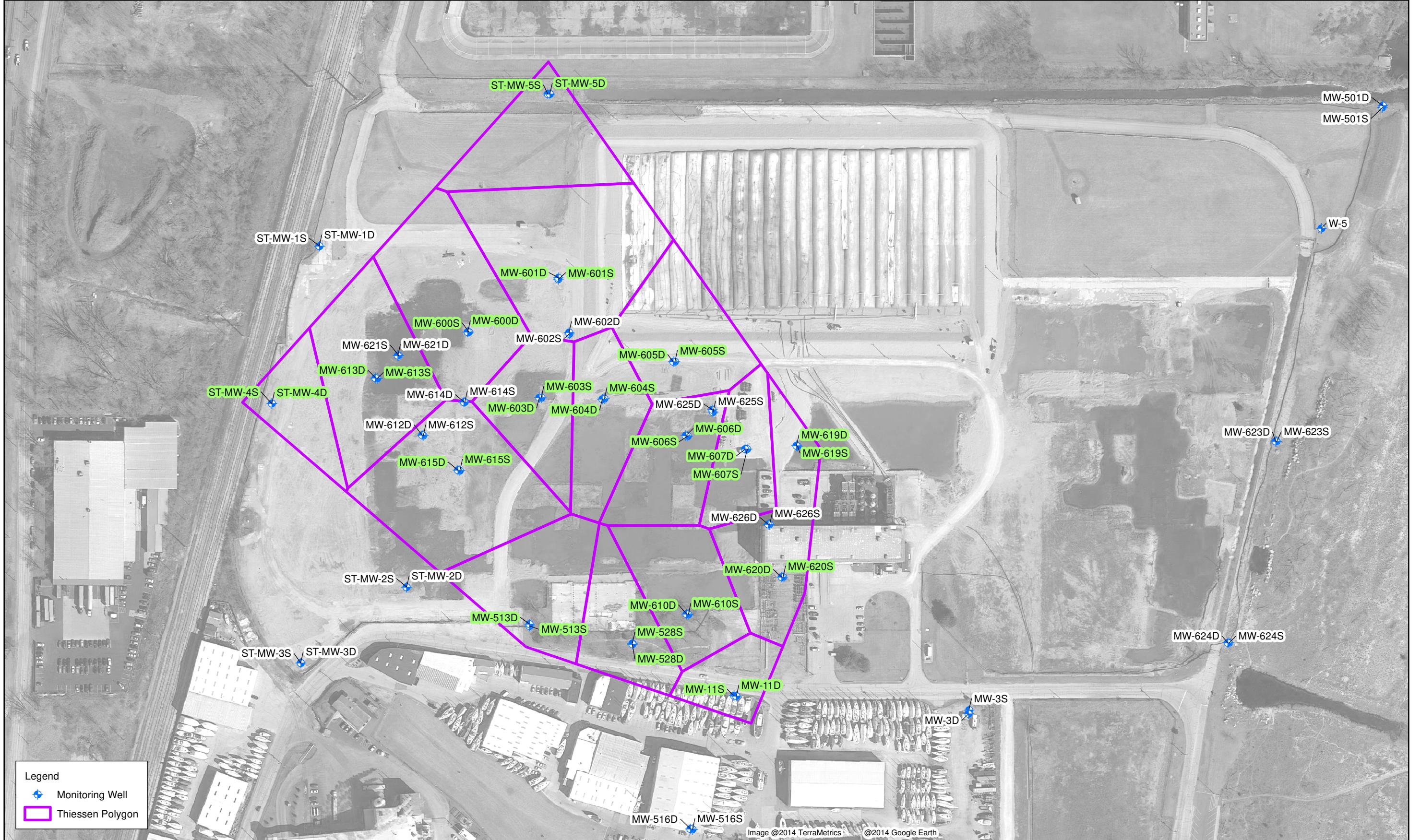


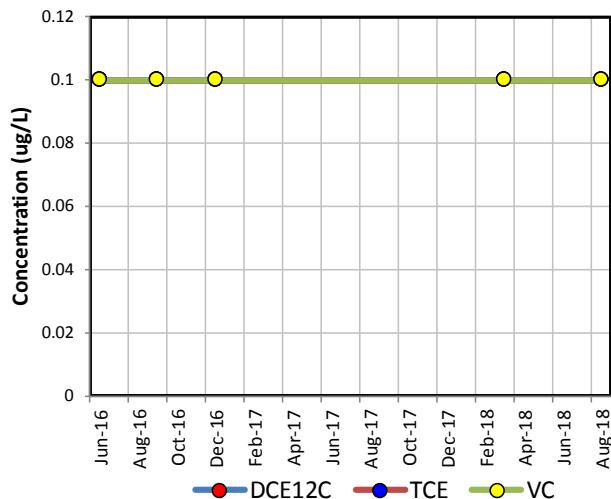
Figure 1
Thiessen Polygon Distribution used for Mass Estimates
OMC Plant 2
Waukegan, IL

Attachment 4

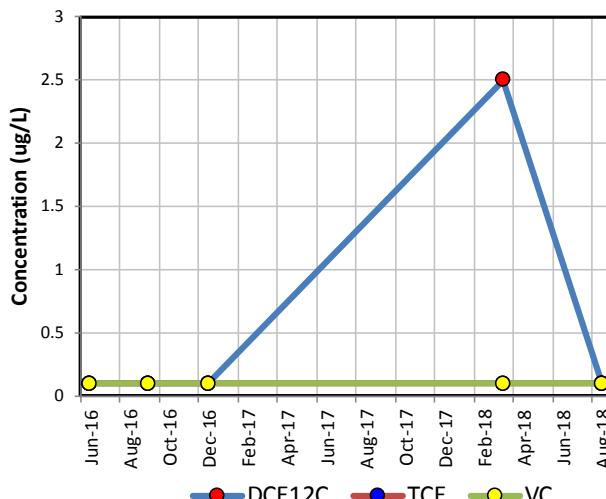
Trend Graphs

CVOC Trends –Performance and Site Wide Monitoring Wells (2014-2018)

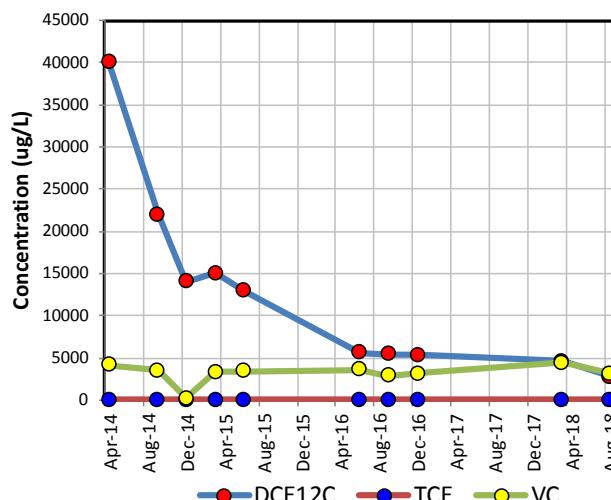
MW-003D



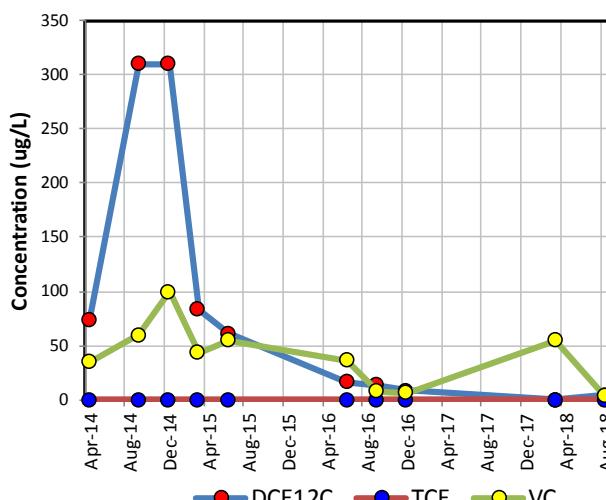
MW-003S



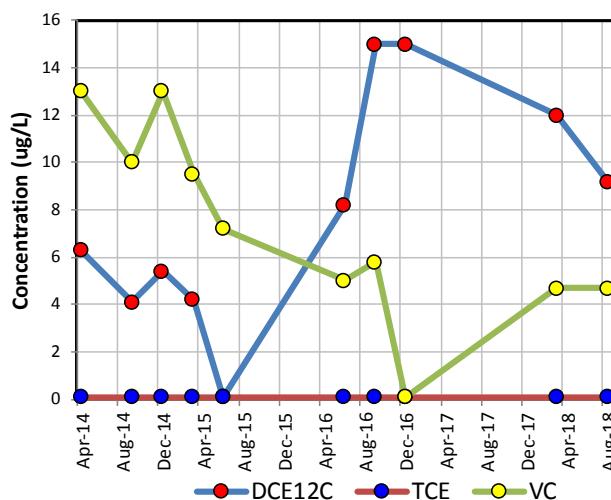
MW-011D



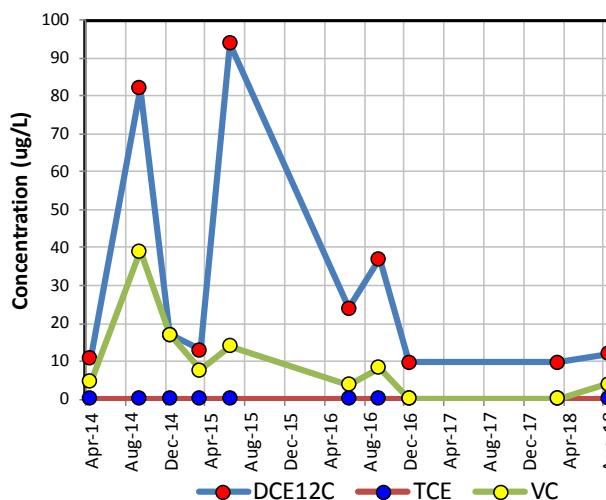
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MW-501D



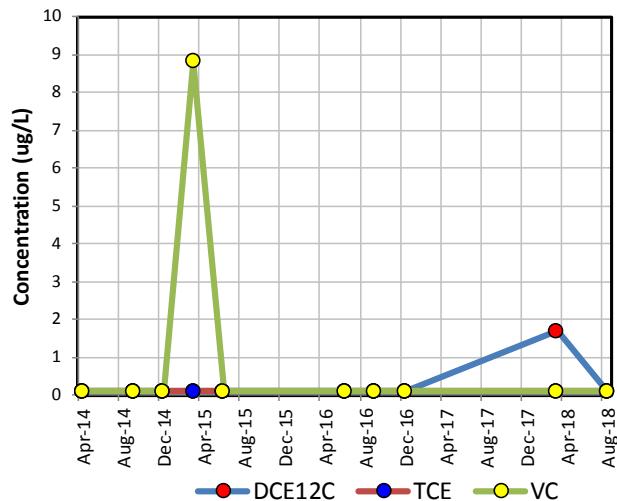
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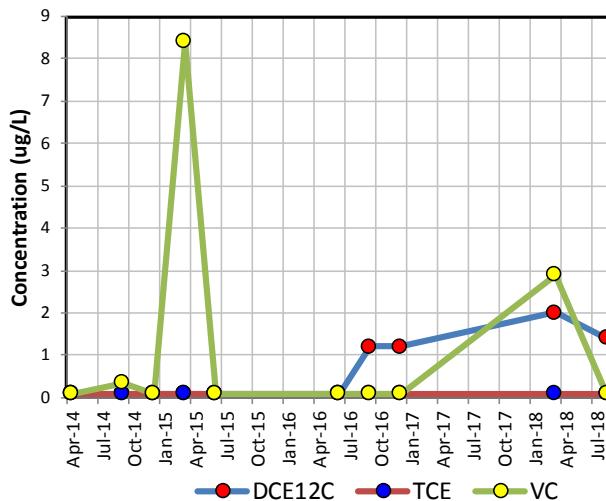
CVOC = Cis-1,2, Dichloroethene (DCE12C), Trichloroethene (TCE), and Vinyl Chloride (VC) in microgram per liter ($\mu\text{g/L}$)

CVOC Trends –Performance and Site Wide Monitoring Wells (2014-2018)

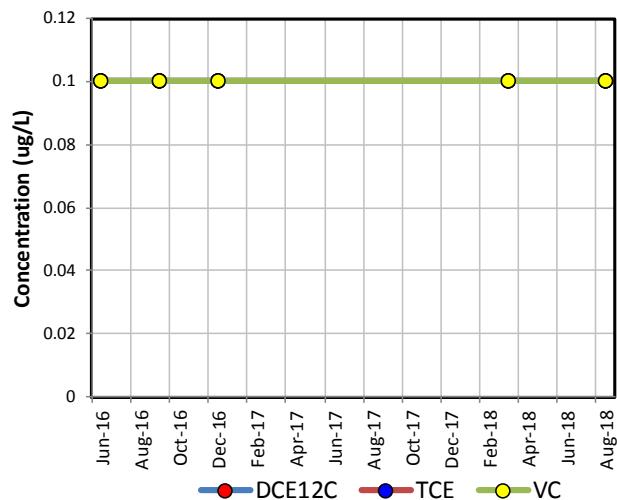
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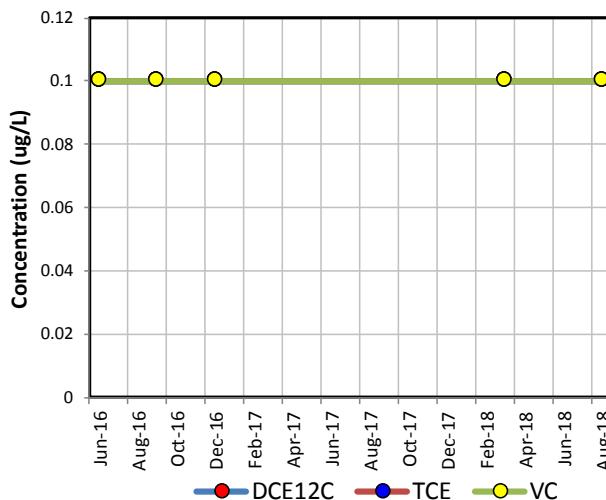
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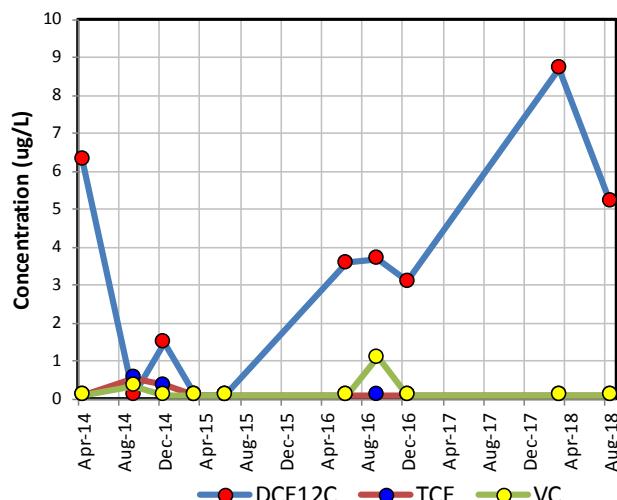
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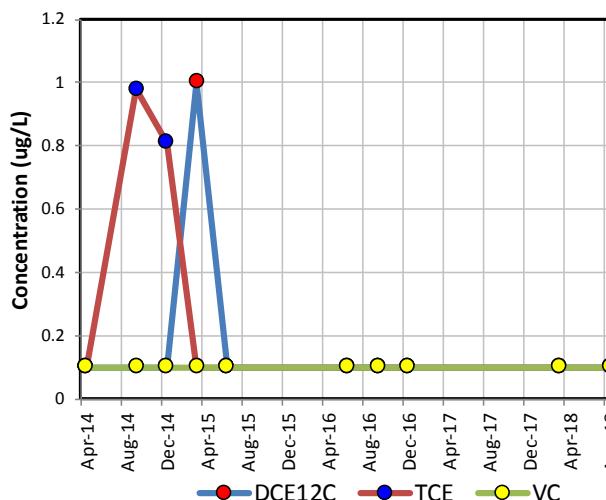
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MW-528D



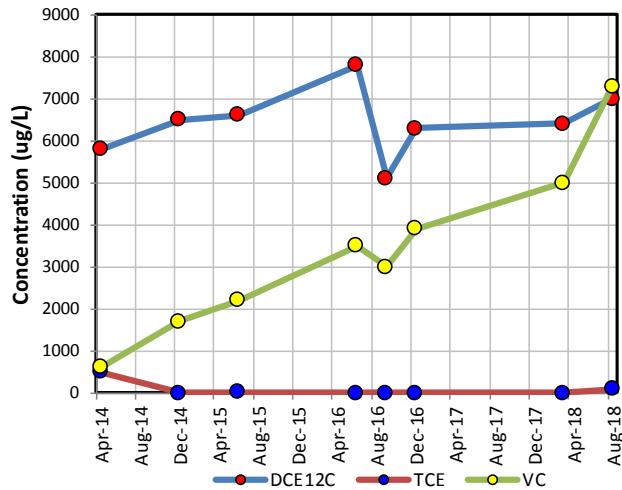
MW-528S



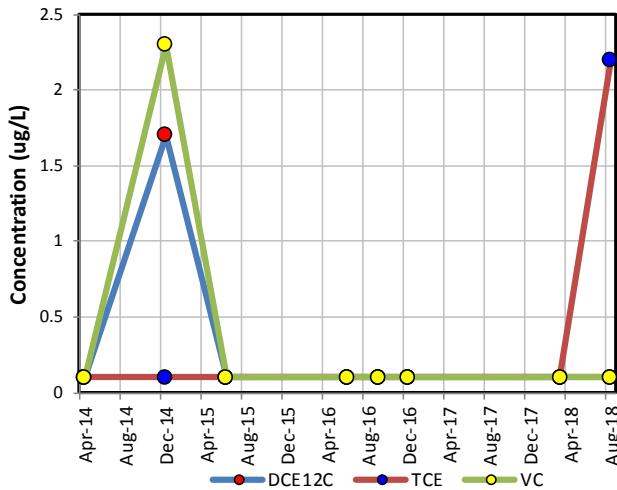
CVOC = Cis-1,2, Dichloroethene (DCE12C), Trichloroethene (TCE), and Vinyl Chloride (VC) in microgram per liter ($\mu\text{g/L}$)

CVOC Trends –Performance and Site Wide Monitoring Wells (2014-2018)

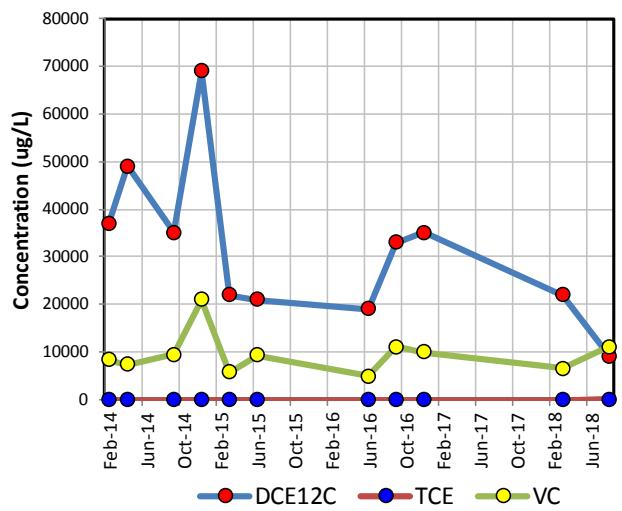
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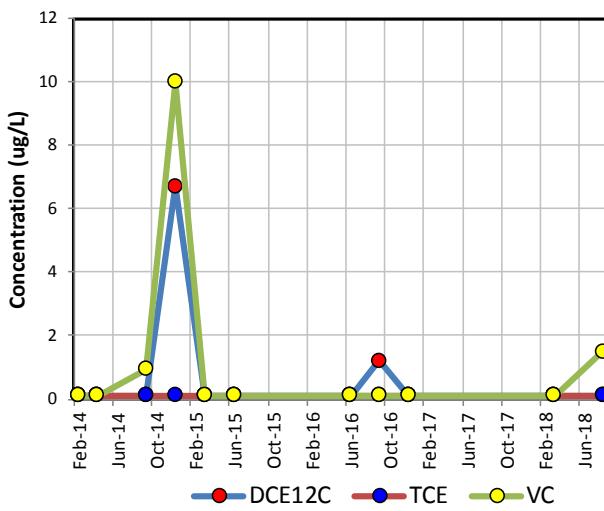
MW-600S



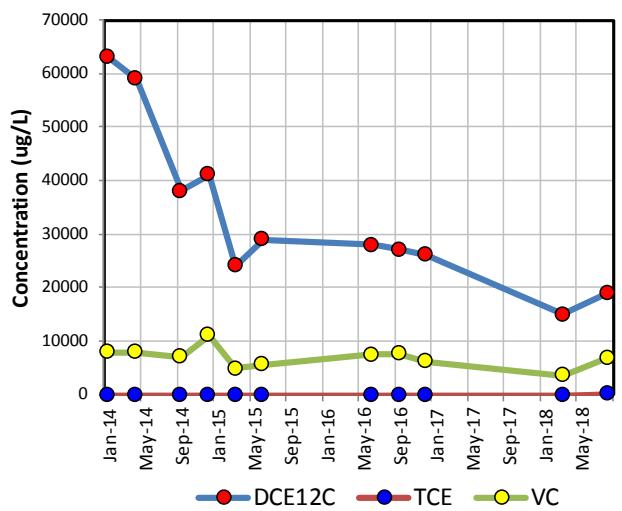
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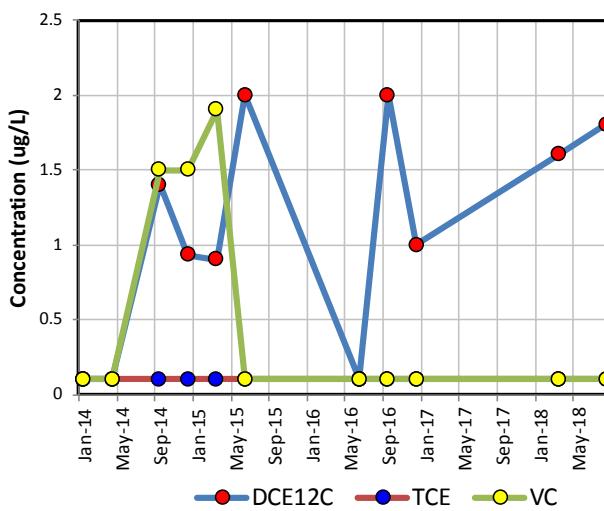
MW-601S



MW-602D



MW-602S

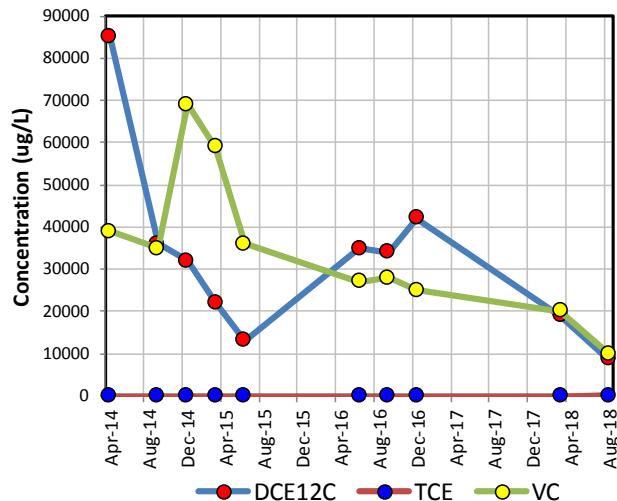


MW-600S and MW-600D were incorrectly sampled in March 2015 and results have been omitted from CVOC trend analysis.

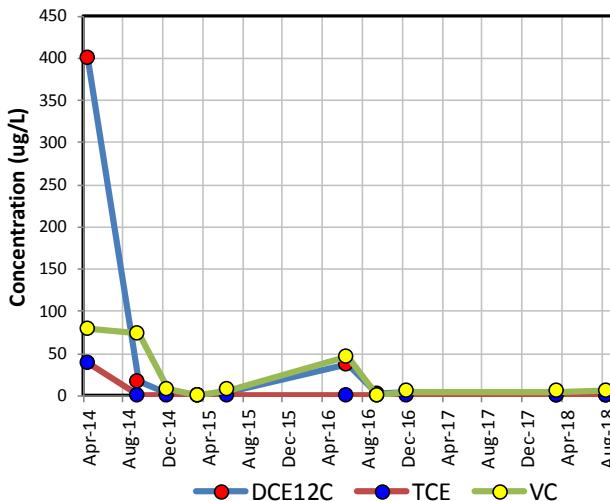
CVOC = Cis-1,2, Dichloroethene (DCE12C), Trichloroethene (TCE), and Vinyl Chloride (VC) in microgram per liter (µg/L)

CVOC Trends –Performance and Site Wide Monitoring Wells (2014-2018)

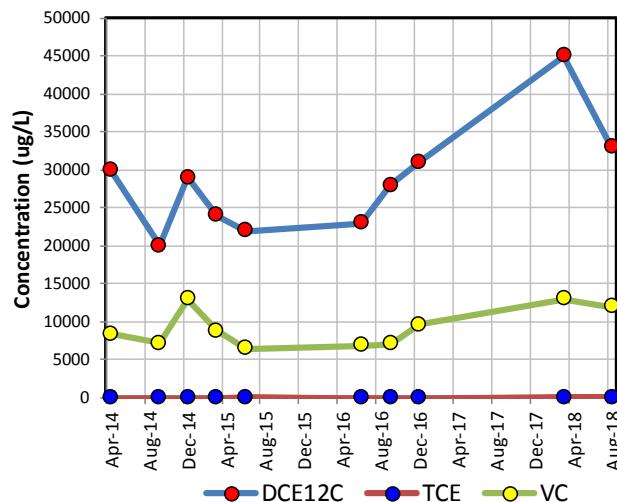
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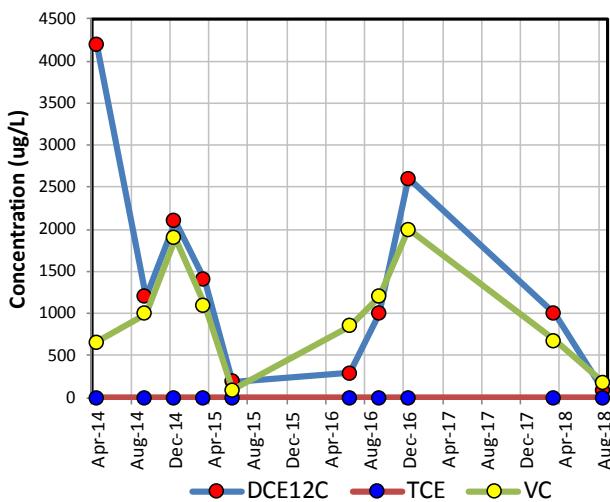
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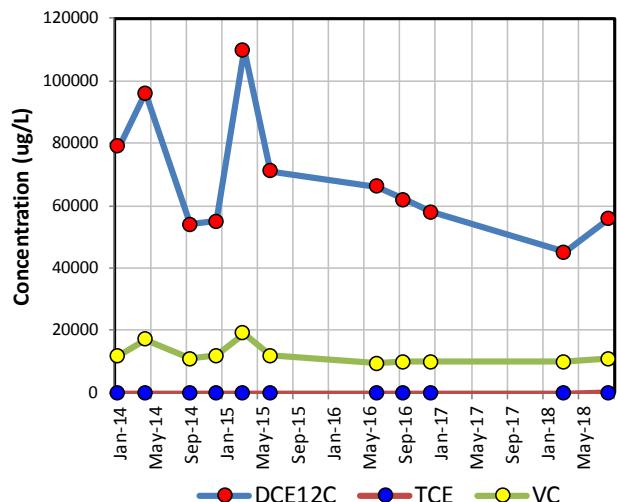
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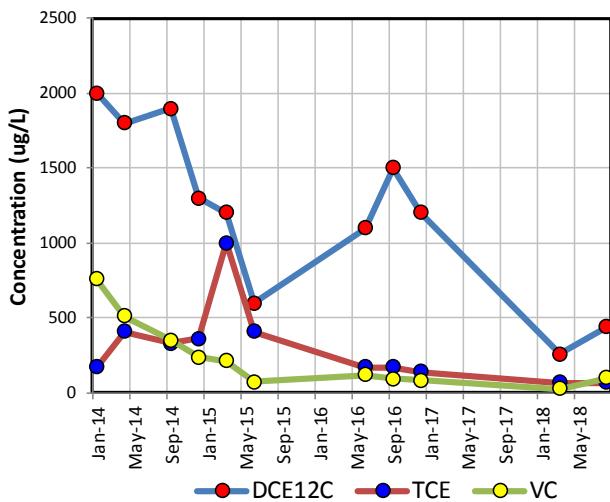
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MW-605D



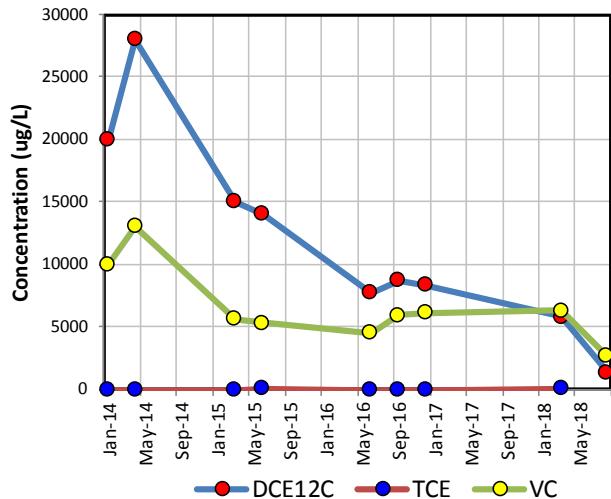
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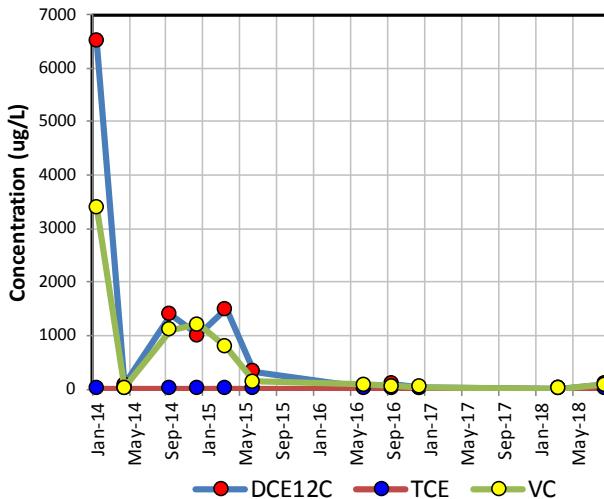
CVOC = Cis-1,2, Dichloroethene (DCE12C), Trichloroethene (TCE), and Vinyl Chloride (VC) in microgram per liter ($\mu\text{g/L}$)

CVOC Trends –Performance and Site Wide Monitoring Wells (2014-2018)

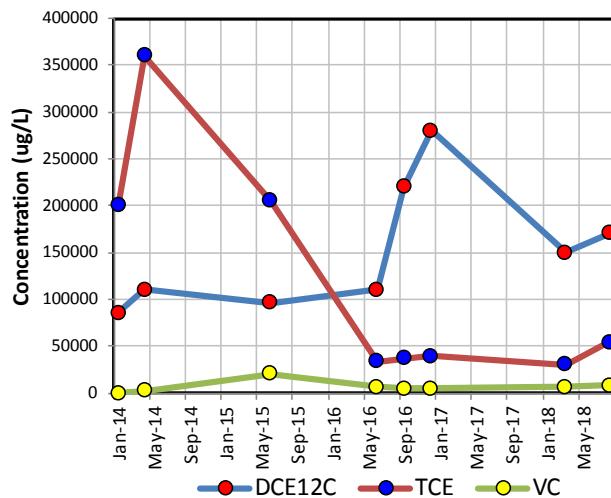
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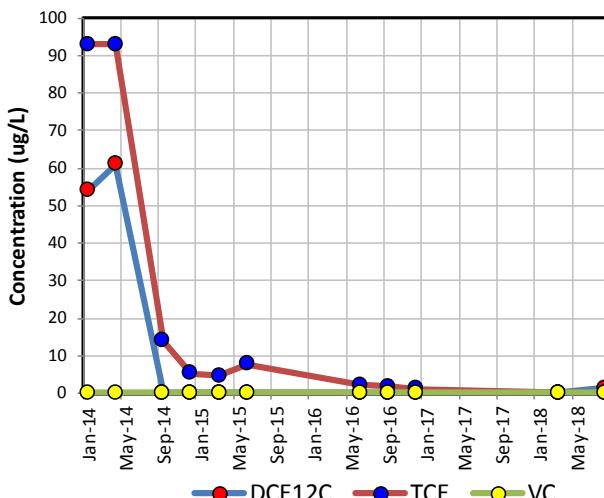
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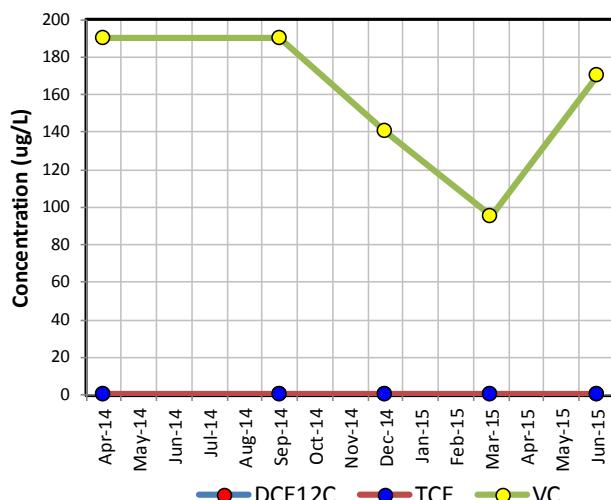
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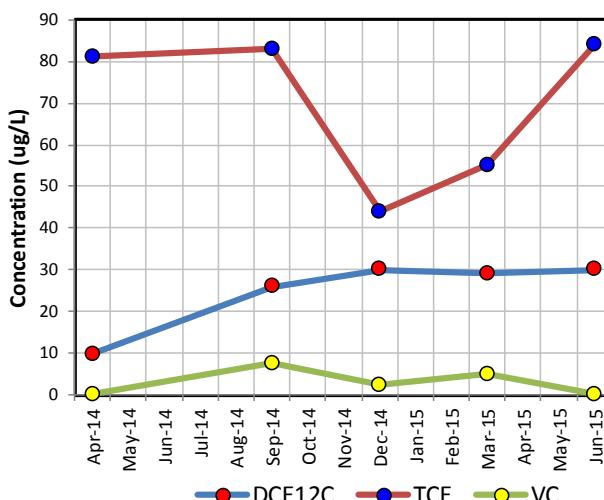
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MW-609D

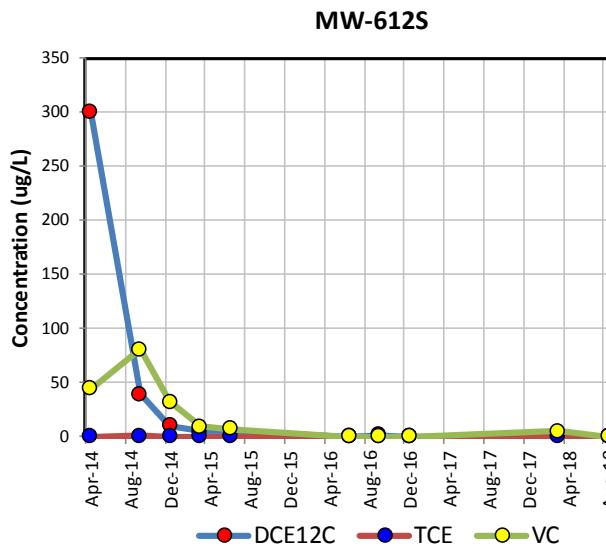
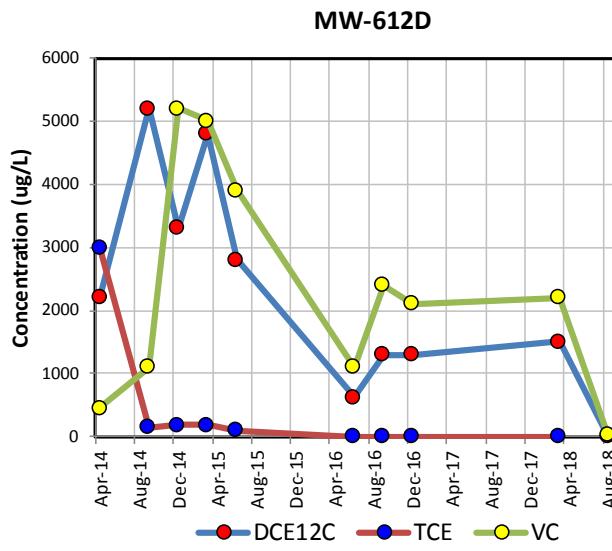
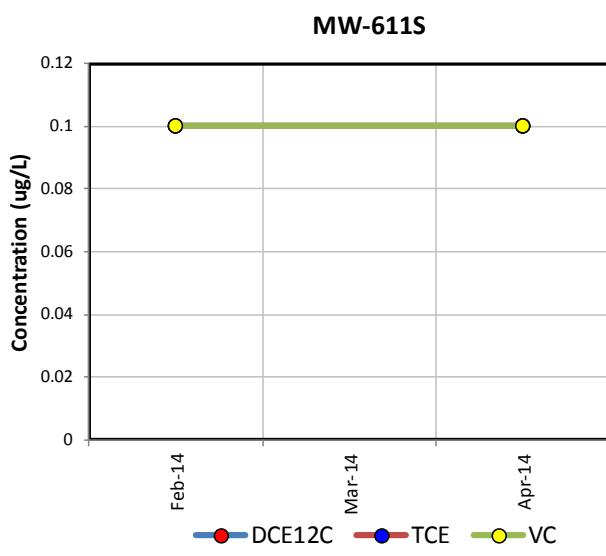
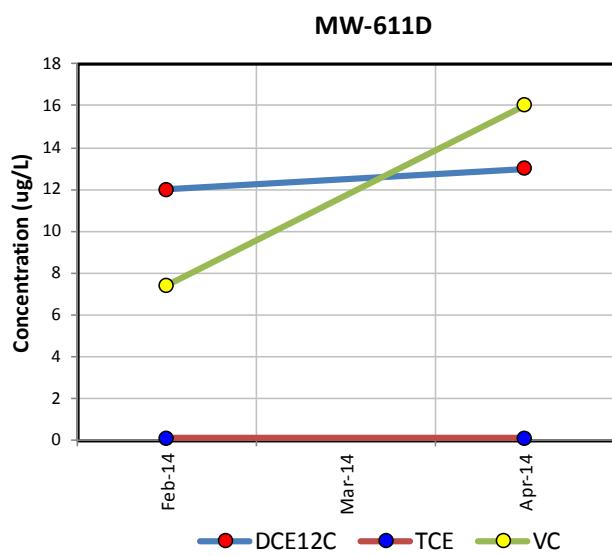
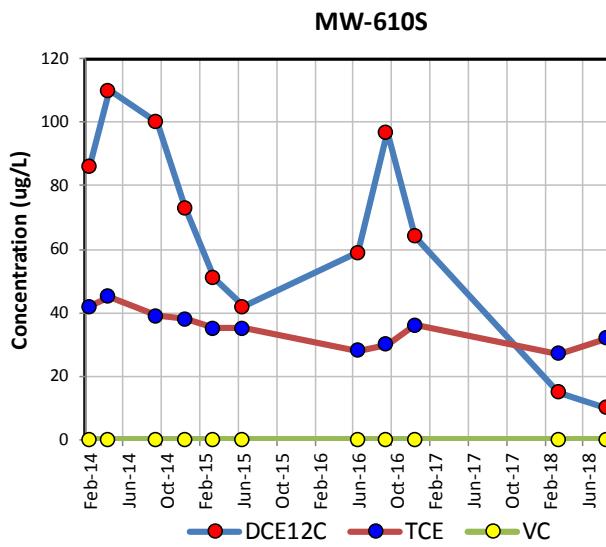
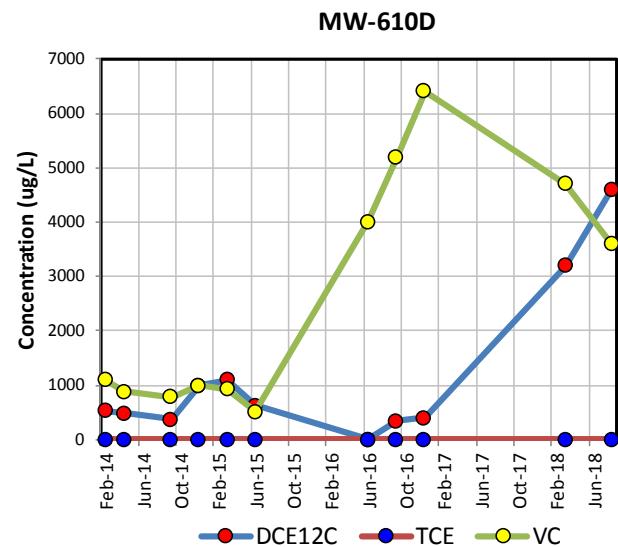


MW-609S



CVOC = Cis-1,2, Dichloroethene (DCE12C), Trichloroethene (TCE), and Vinyl Chloride (VC) in microgram per liter ($\mu\text{g/L}$)

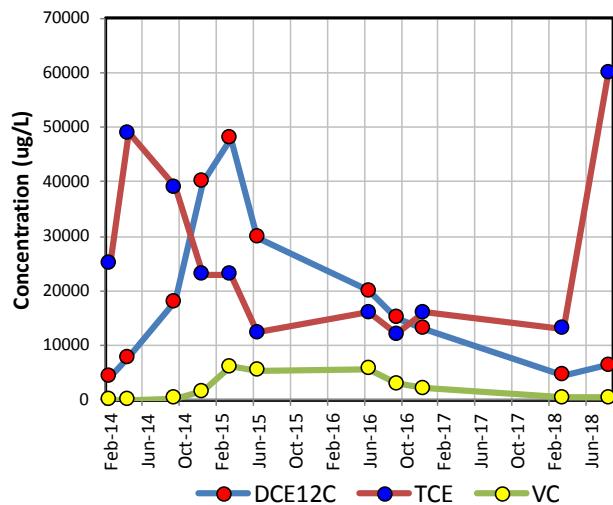
CVOC Trends –Performance and Site Wide Monitoring Wells (2014-2018)



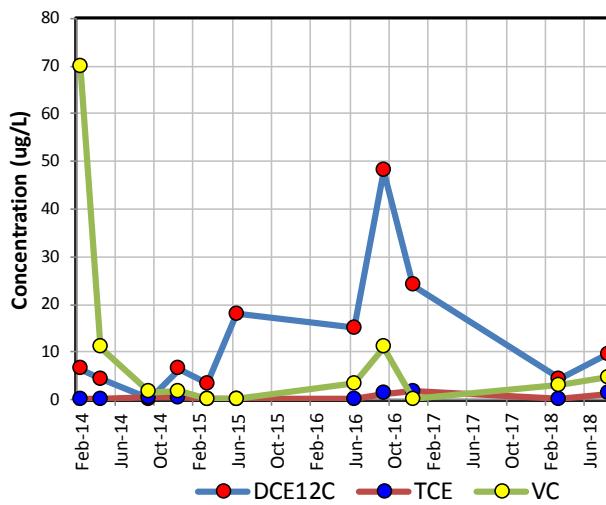
CVOC = Cis-1,2-Dichloroethene (DCE12C), Trichloroethene (TCE), and Vinyl Chloride (VC) in microgram per liter ($\mu\text{g/L}$)

CVOC Trends –Performance and Site Wide Monitoring Wells (2014-2018)

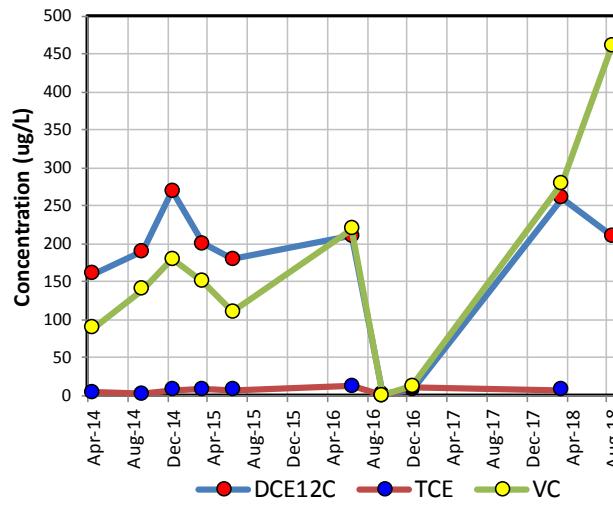
MW-613D



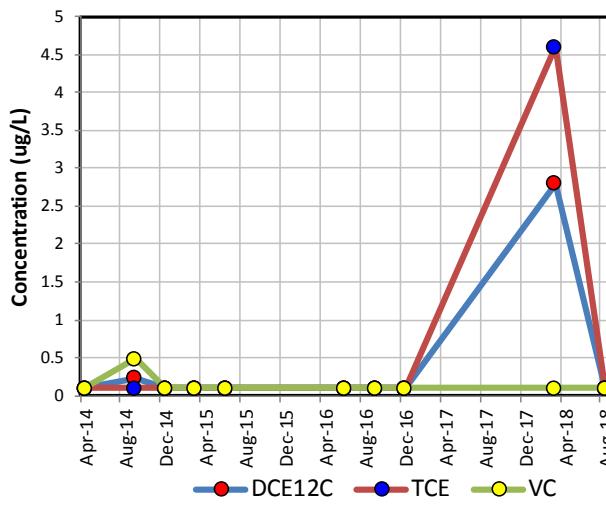
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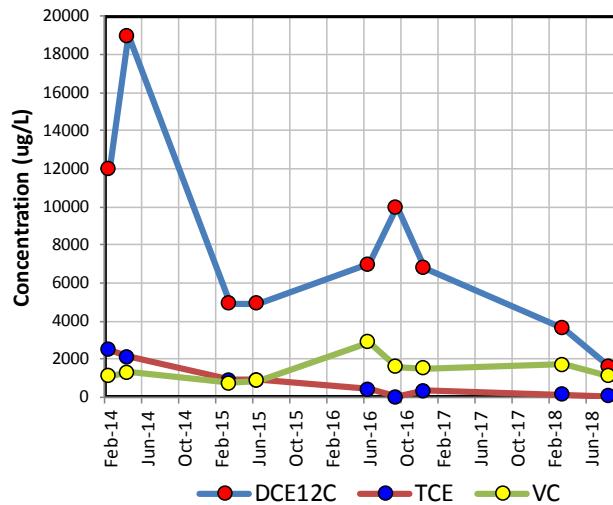
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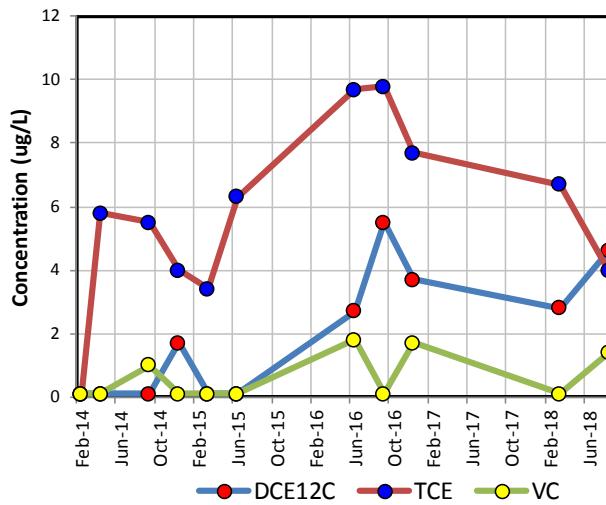
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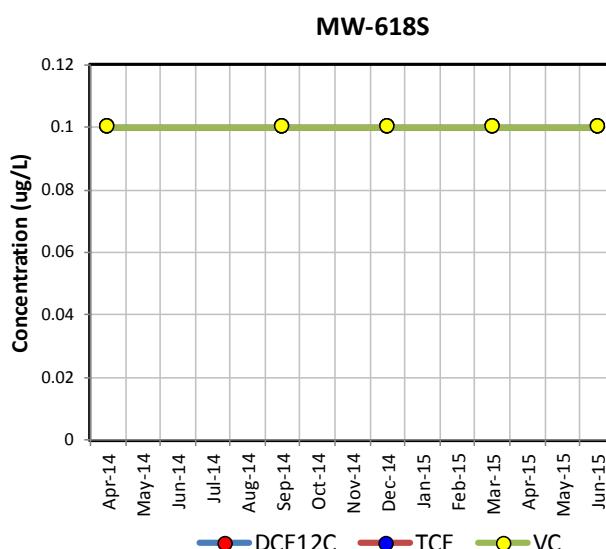
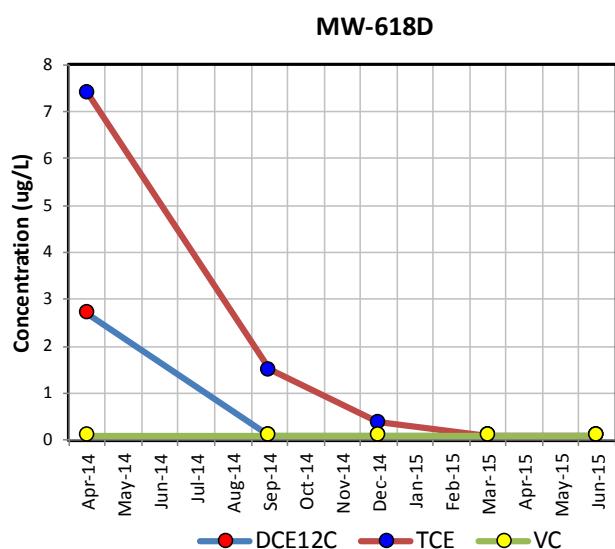
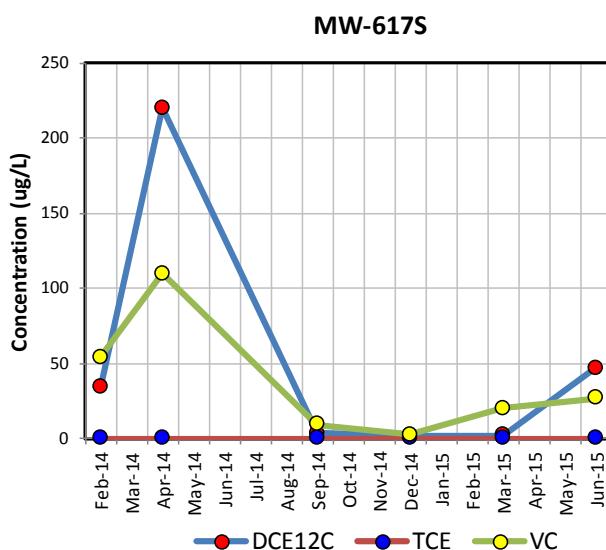
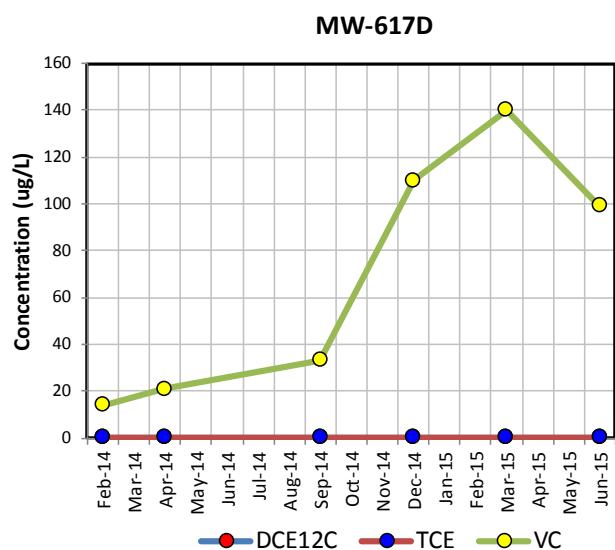
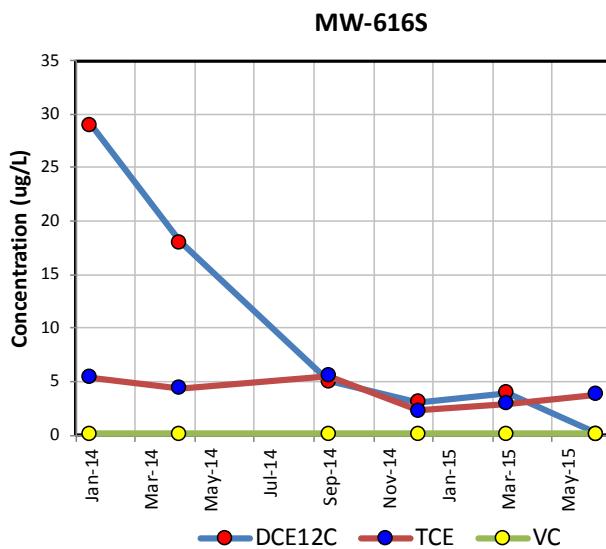
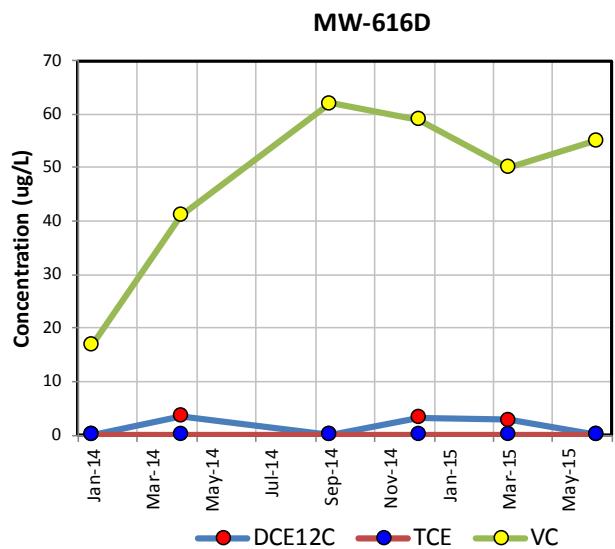
MW-615D



MW-615S



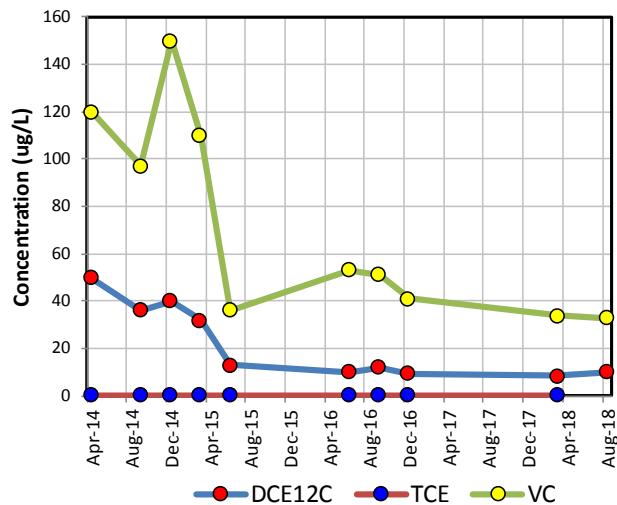
CVOC Trends –Performance and Site Wide Monitoring Wells (2014-2018)



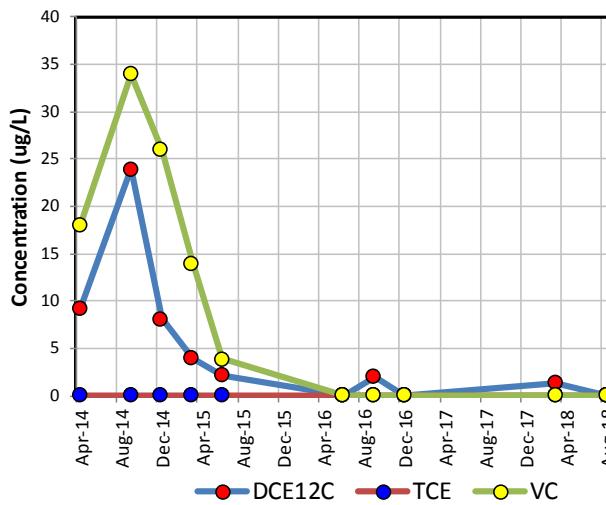
CVOC = Cis-1,2, Dichloroethene (DCE12C), Trichloroethene (TCE), and Vinyl Chloride (VC) in microgram per liter ($\mu\text{g/L}$)

CVOC Trends –Performance and Site Wide Monitoring Wells (2014-2018)

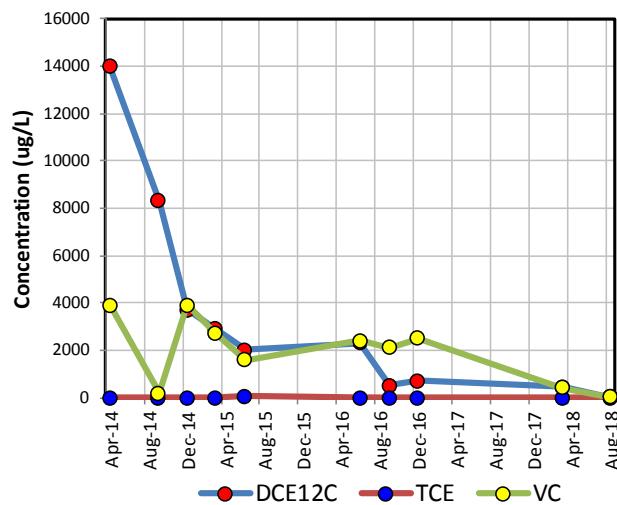
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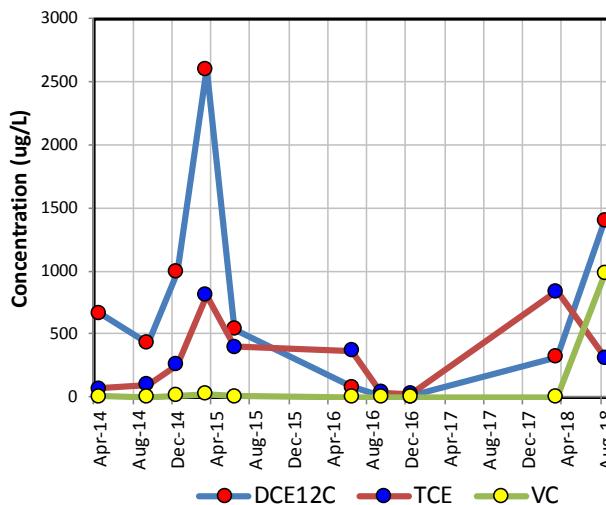
MW-619S



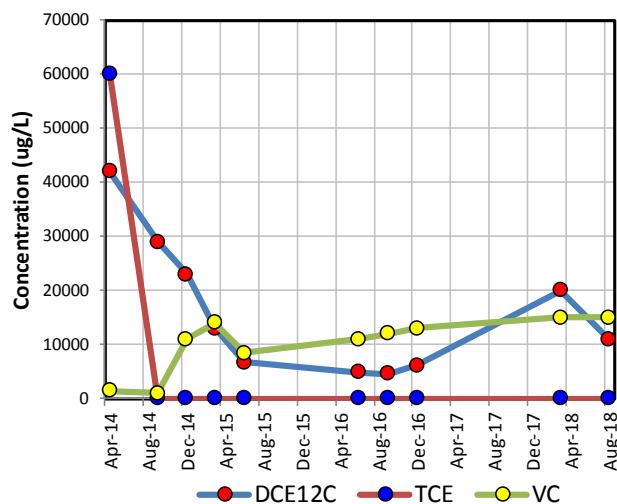
MW-620D



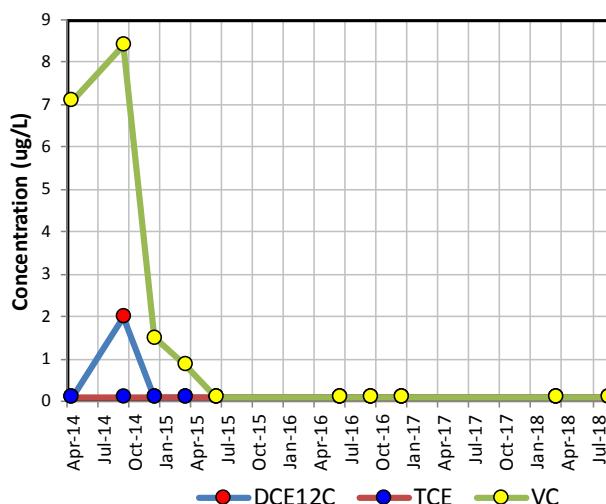
MW-620S



MW-621D



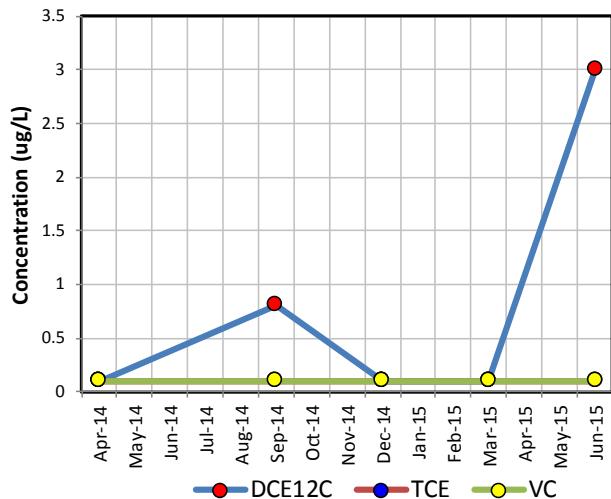
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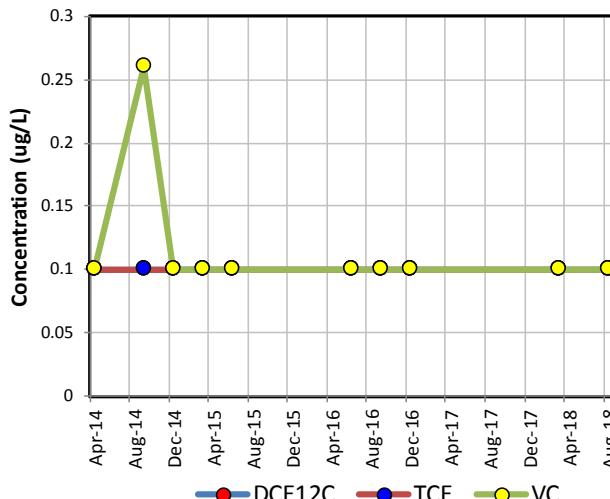
CVOC = Cis-1,2, Dichloroethene (DCE12C), Trichloroethene (TCE), and Vinyl Chloride (VC) in microgram per liter ($\mu\text{g/L}$)

CVOC Trends –Performance and Site Wide Monitoring Wells (2014-2018)

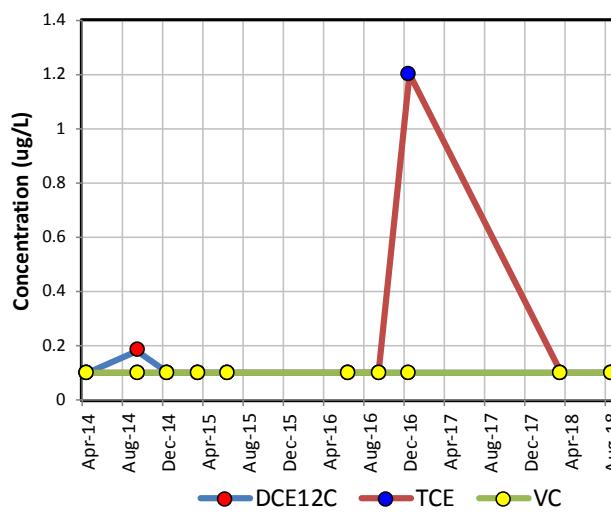
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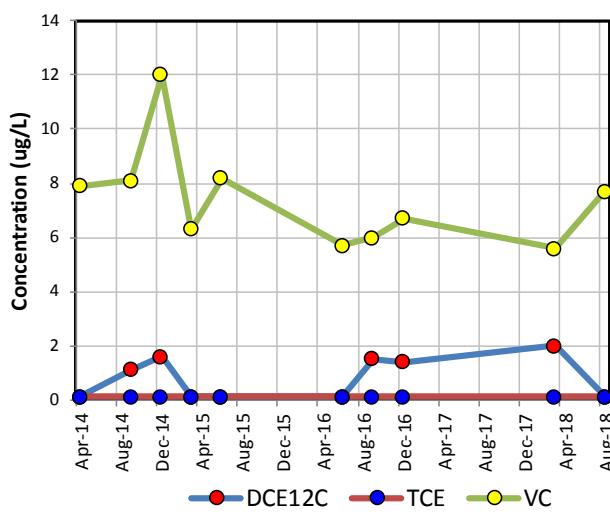
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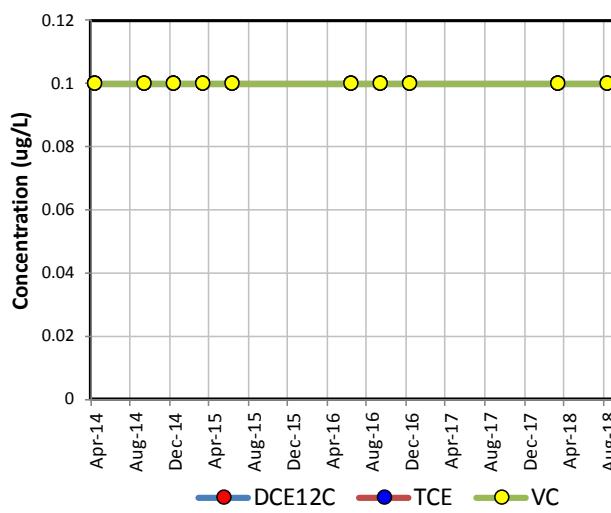
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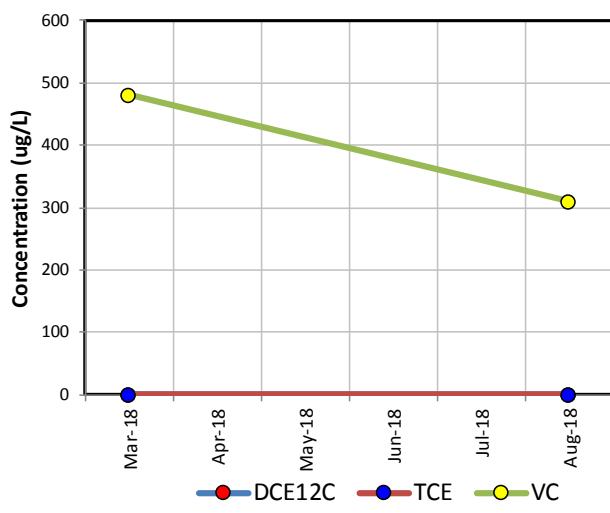
MW-624D



MW-624S

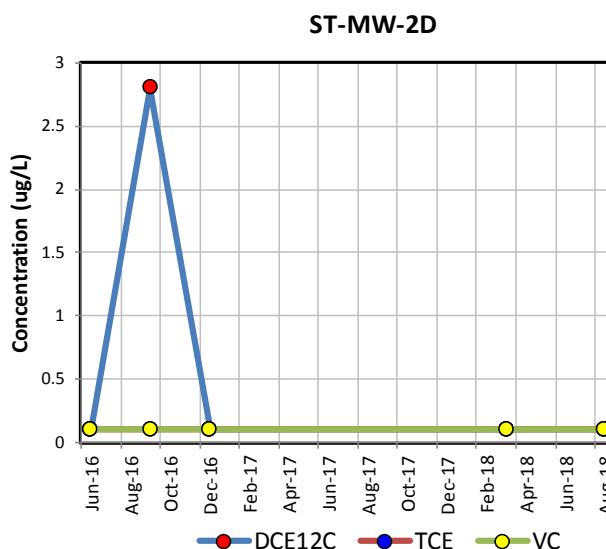
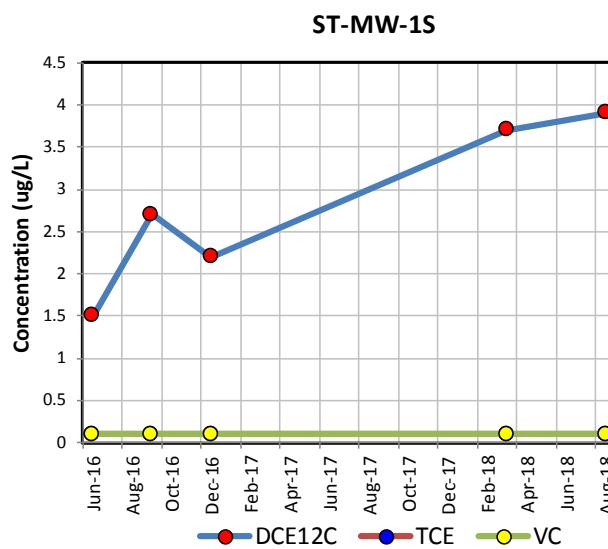
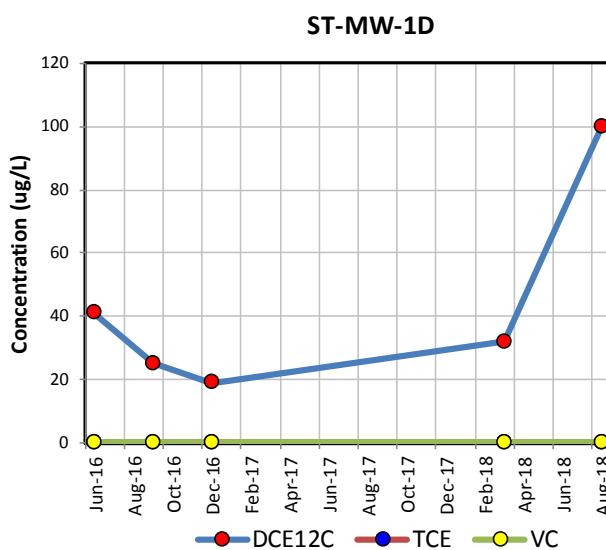
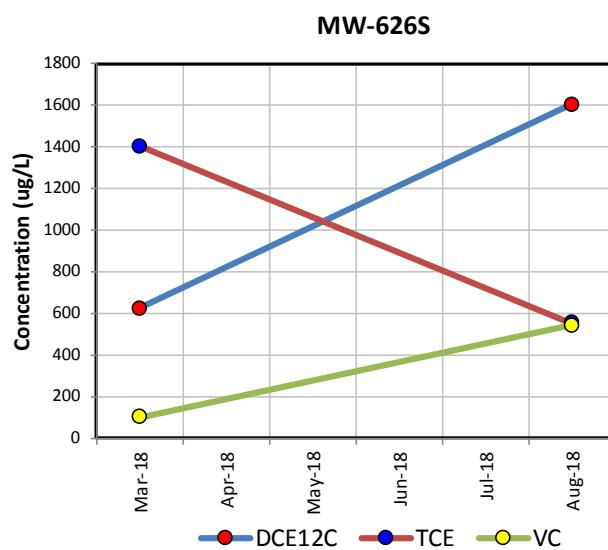
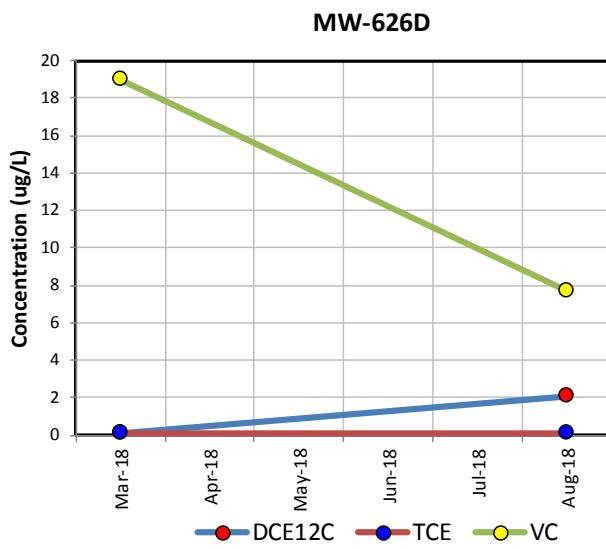
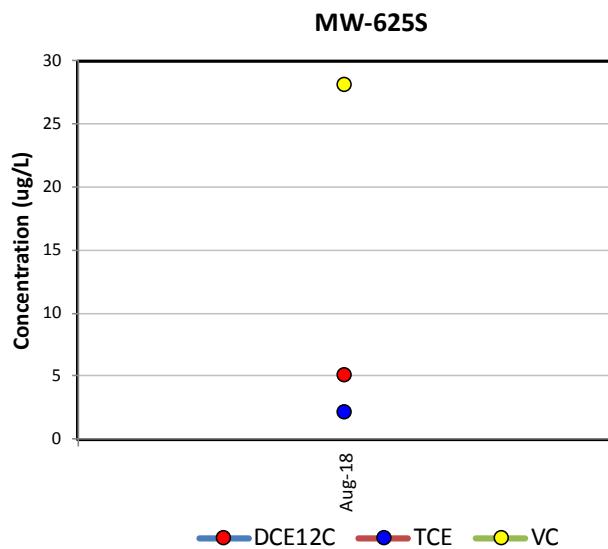


MW-625D



CVOC = Cis-1,2, Dichloroethene (DCE12C), Trichloroethene (TCE), and Vinyl Chloride (VC) in microgram per liter ($\mu\text{g/L}$)

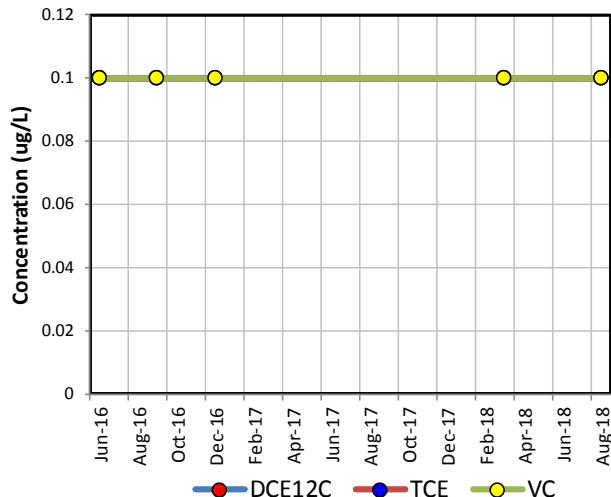
CVOC Trends –Performance and Site Wide Monitoring Wells (2014-2018)



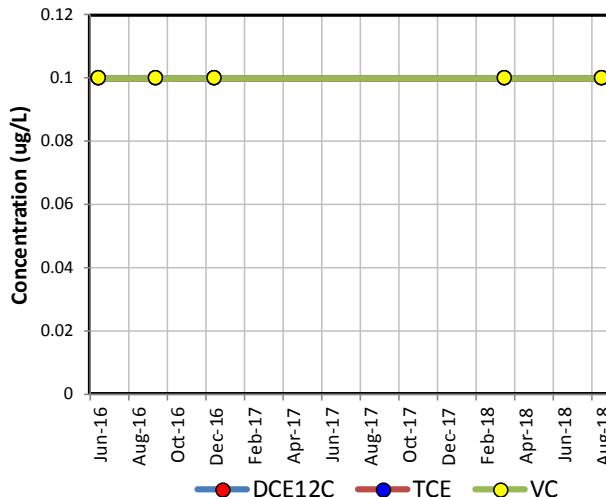
CVOC = Cis-1,2, Dichloroethene (DCE12C), Trichloroethene (TCE), and Vinyl Chloride (VC) in microgram per liter ($\mu\text{g/L}$)

CVOC Trends –Performance and Site Wide Monitoring Wells (2014-2018)

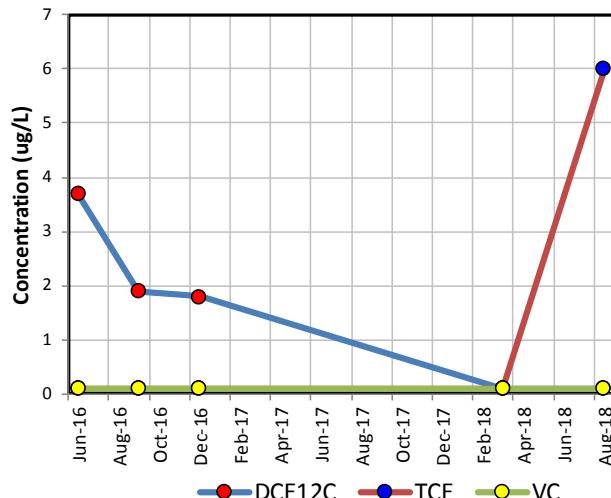
ST-MW-2S



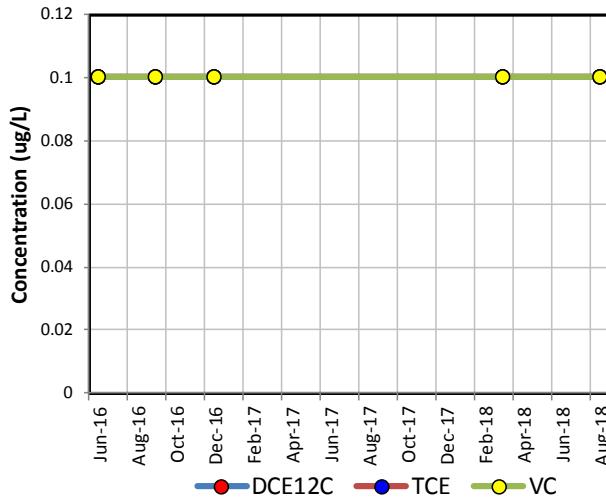
ST-MW-3D



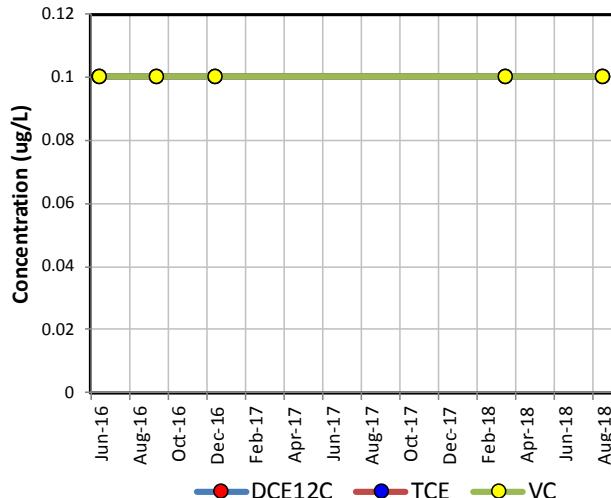
ST-MW-3S



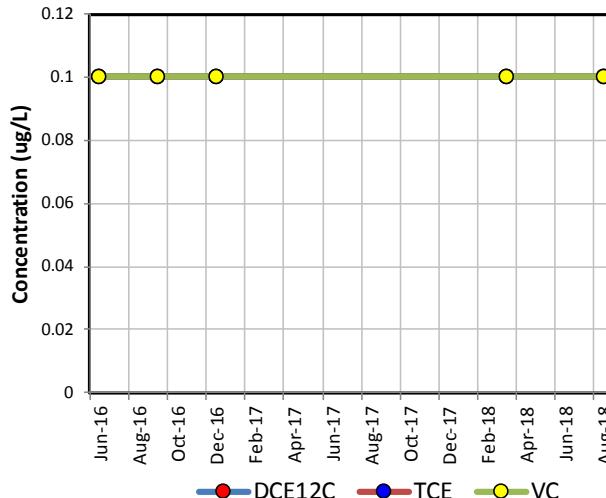
ST-MW-4D



ST-MW-4S

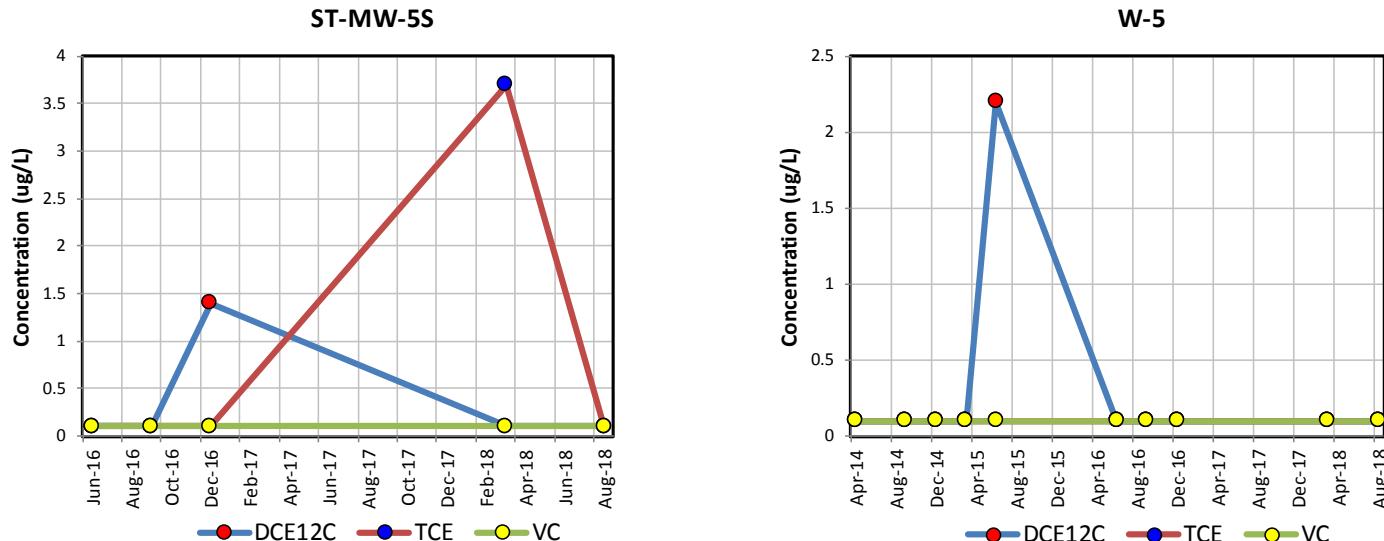


ST-MW-5D



CVOC = Cis-1,2, Dichloroethene (DCE12C), Trichloroethene (TCE), and Vinyl Chloride (VC) in microgram per liter ($\mu\text{g/L}$)

CVOC Trends –Performance and Site Wide Monitoring Wells (2014-2018)

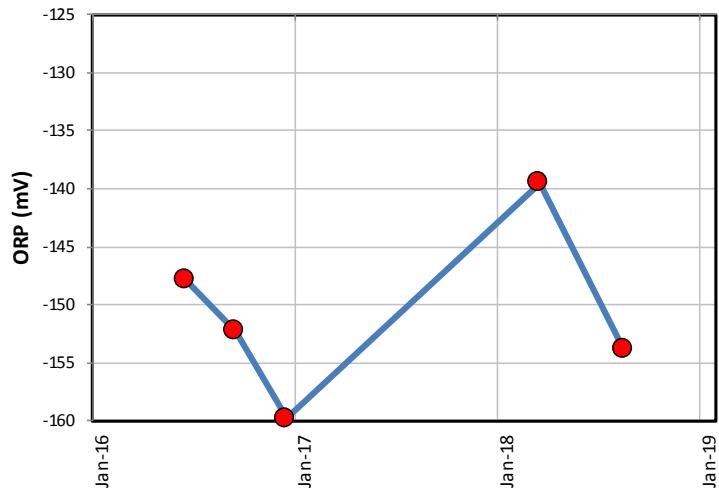


CVOC = Cis-1-2, Dichloroethene (DCE12C), Trichloroethene (TCE), and Vinyl Chloride (VC) in microgram per liter ($\mu\text{g/L}$)

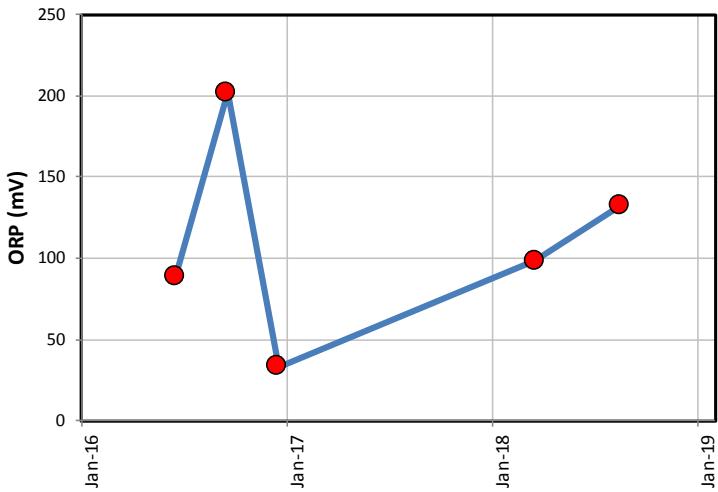
Attachment 5 Field Parameter Plots

ORP Trends –Performance and Site Wide Monitoring Wells (2014-2018)

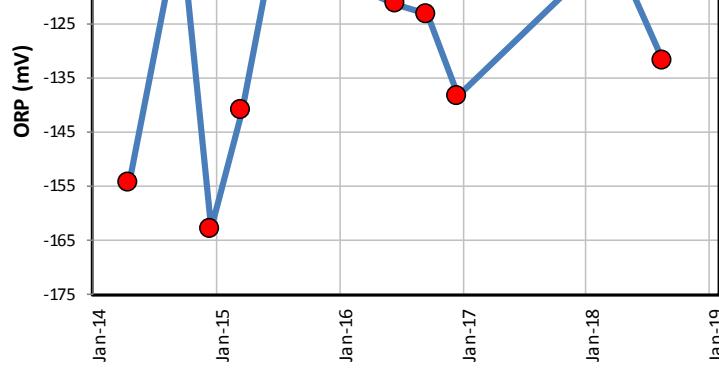
ORP in MW-003D



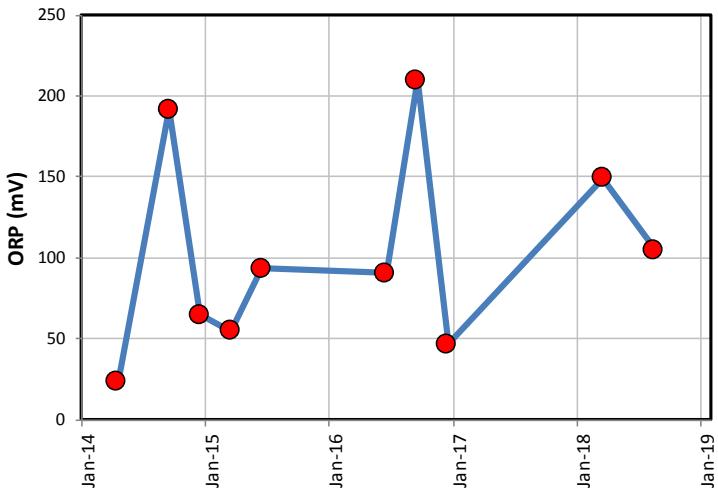
ORP in MW-003S



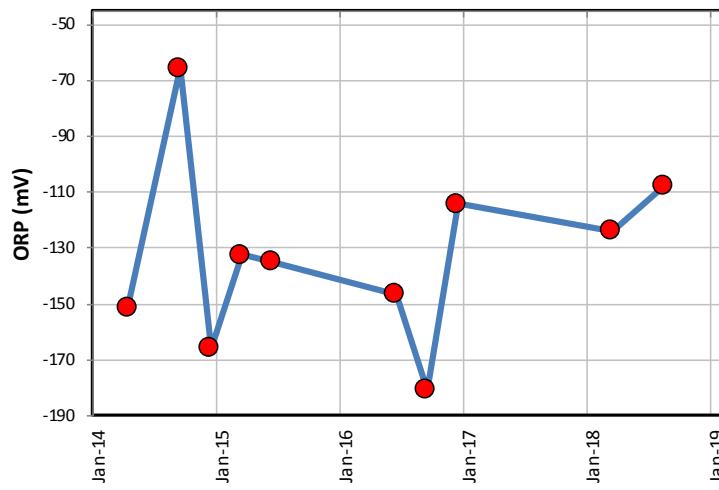
ORP in MW-011D



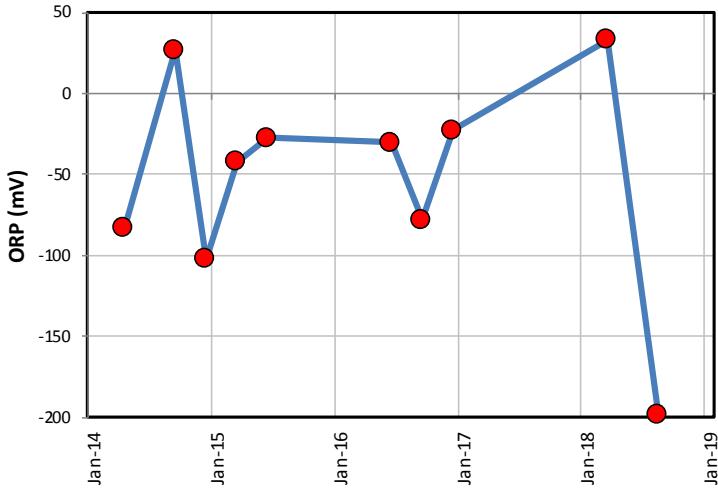
ORP in MW-011S



ORP in MW-501D



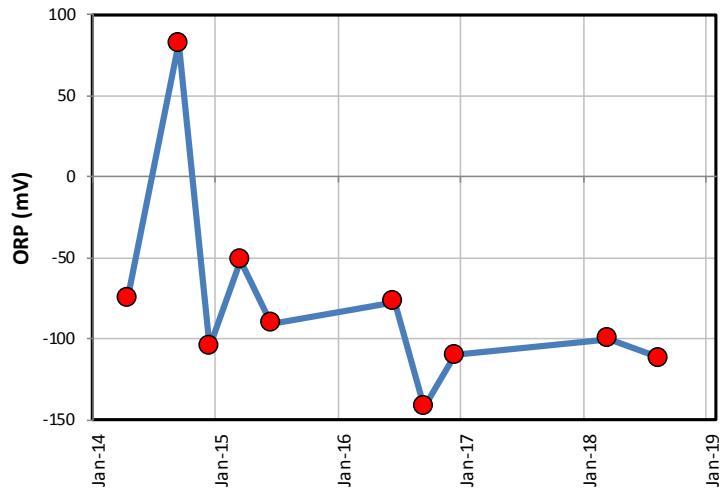
ORP in MW-501S



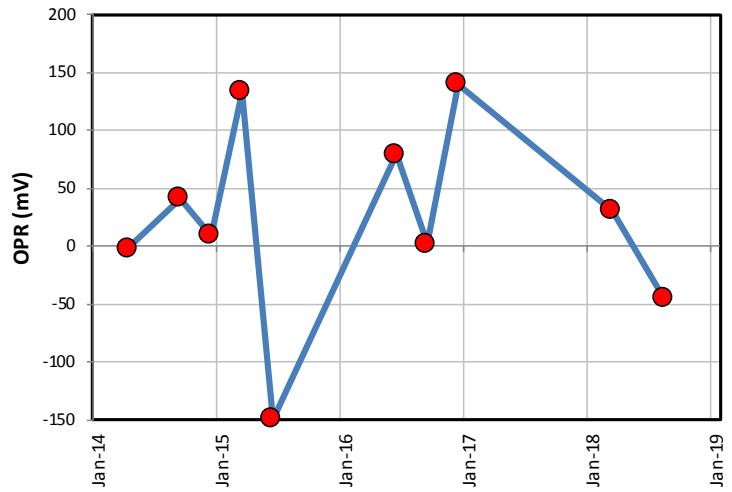
ORP = oxidation reduction potential in millivolts (mV)

ORP Trends –Performance and Site Wide Monitoring Wells (2014-2018)

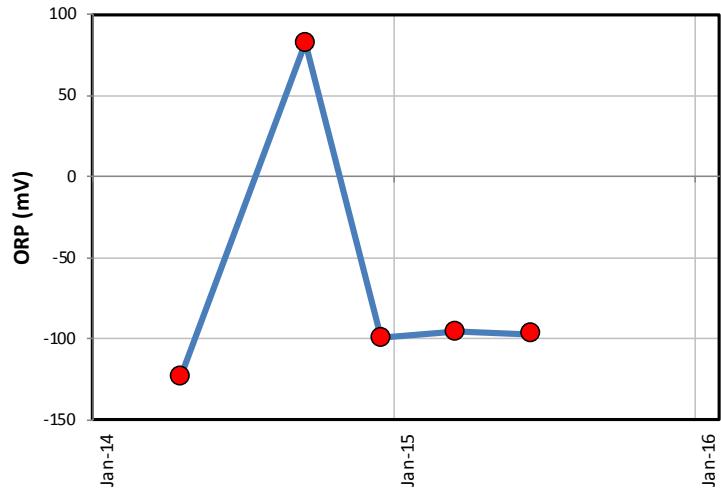
ORP in MW-513D



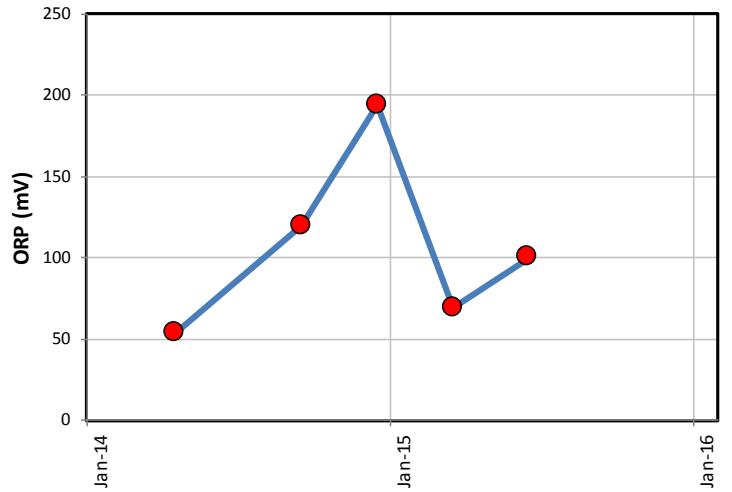
ORP in MW-513S



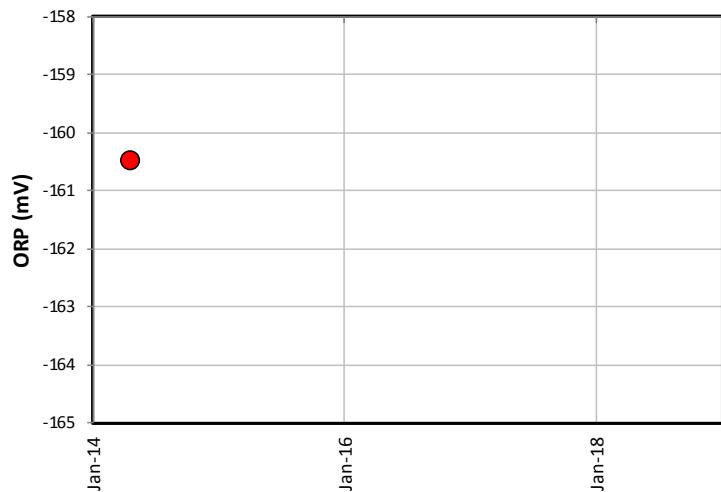
ORP in MW-514D



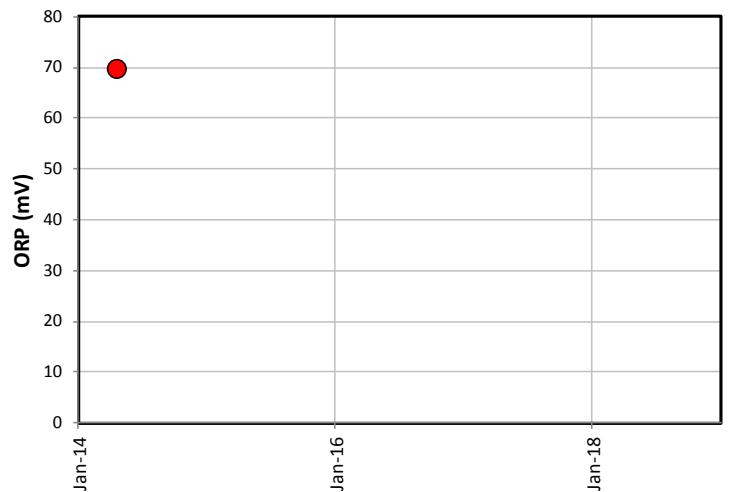
ORP in MW-514S



ORP in MW-515D



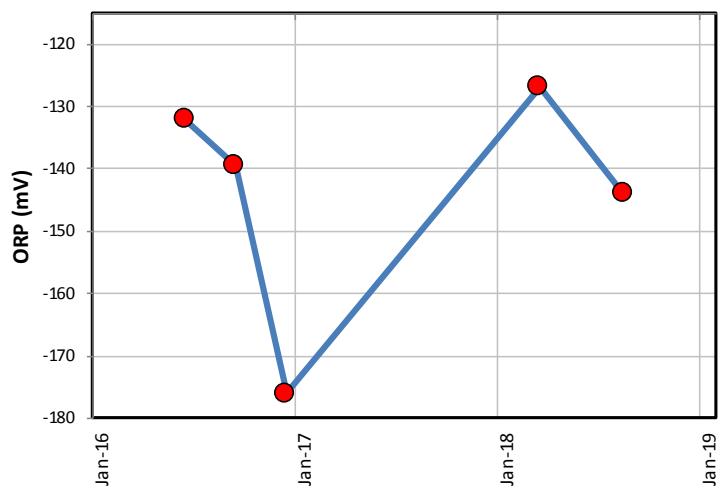
ORP in MW-515S



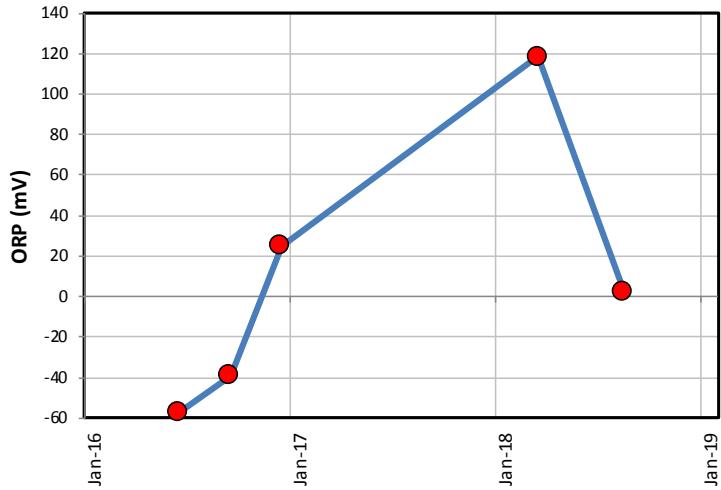
ORP = oxidation reduction potential in millivolts (mV)

ORP Trends –Performance and Site Wide Monitoring Wells (2014-2018)

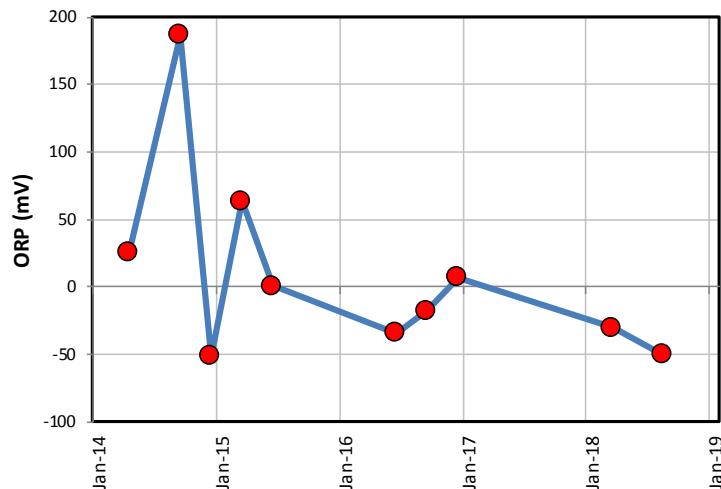
ORP in MW-516D



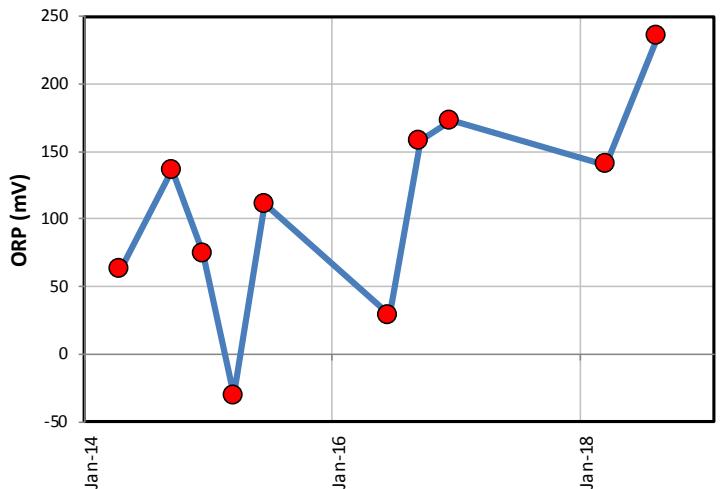
ORP in MW-516S



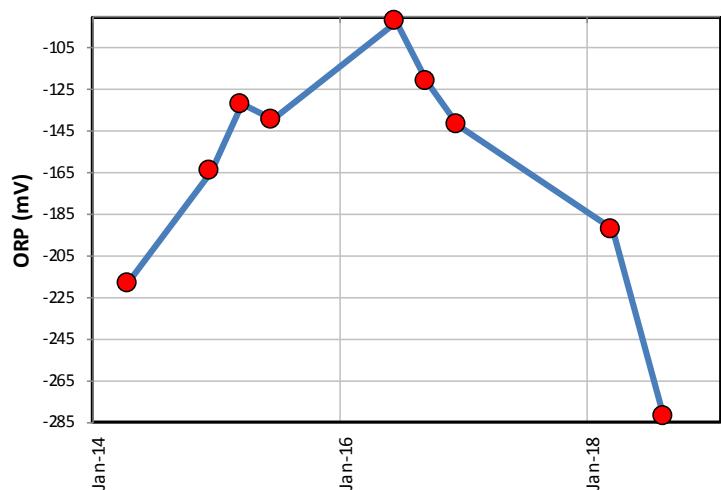
ORP in MW-528D



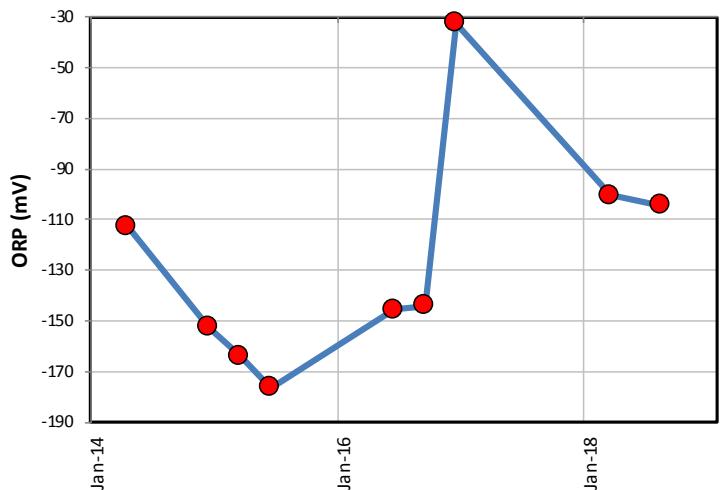
ORP in MW-528S



ORP in MW-600D



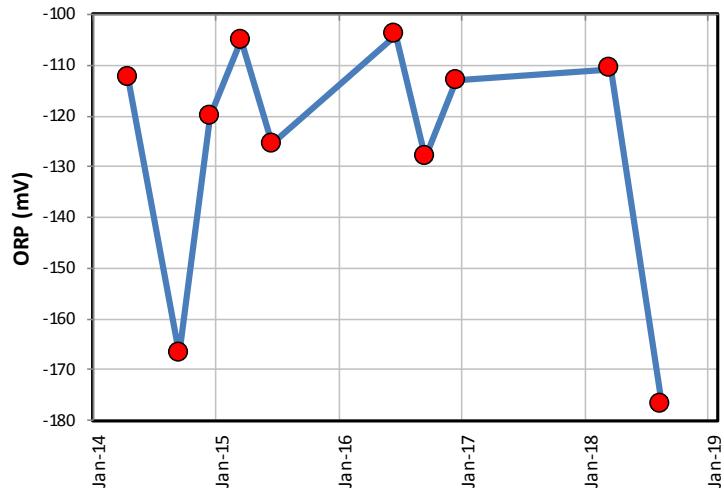
ORP in MW-600S



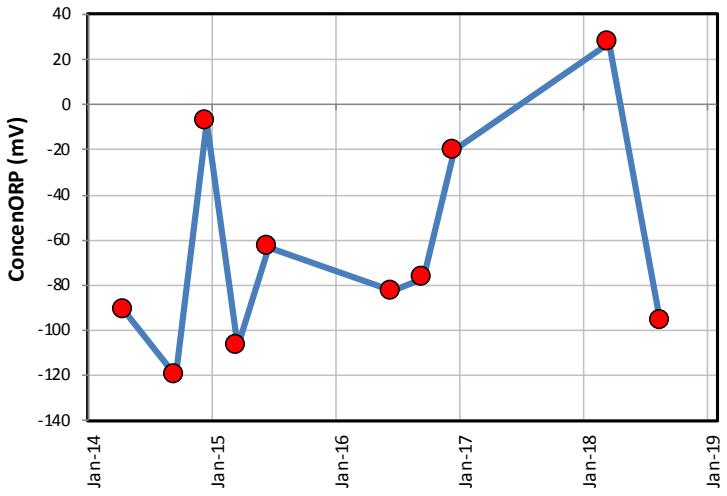
ORP = oxidation reduction potential in millivolts (mV)

ORP Trends –Performance and Site Wide Monitoring Wells (2014-2018)

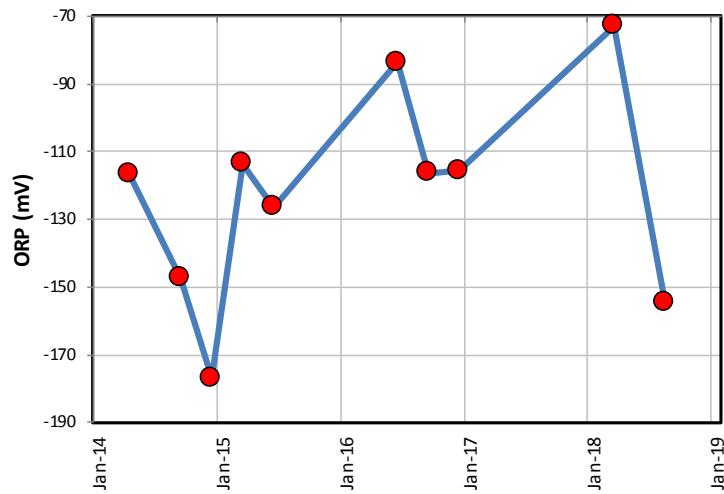
ORP in MW-601D



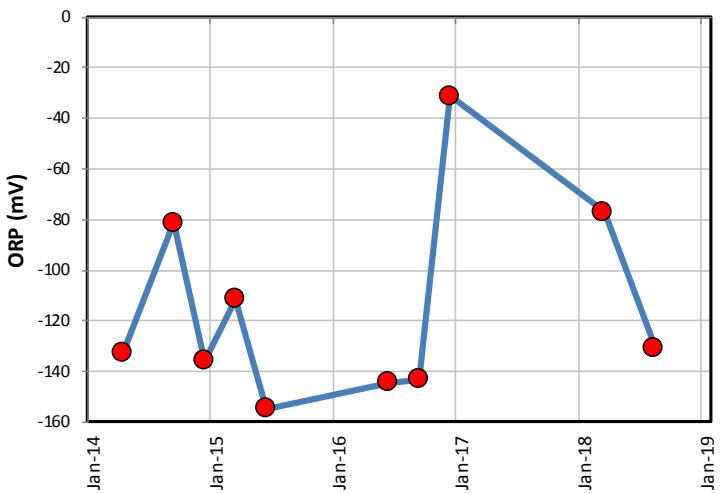
ORP in MW-601S



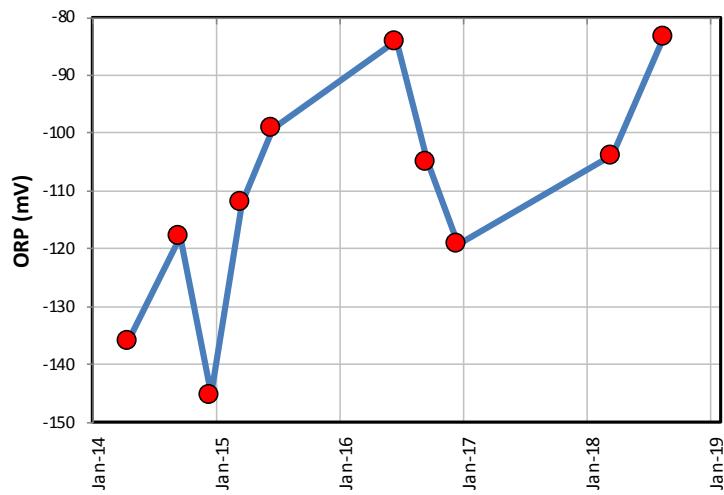
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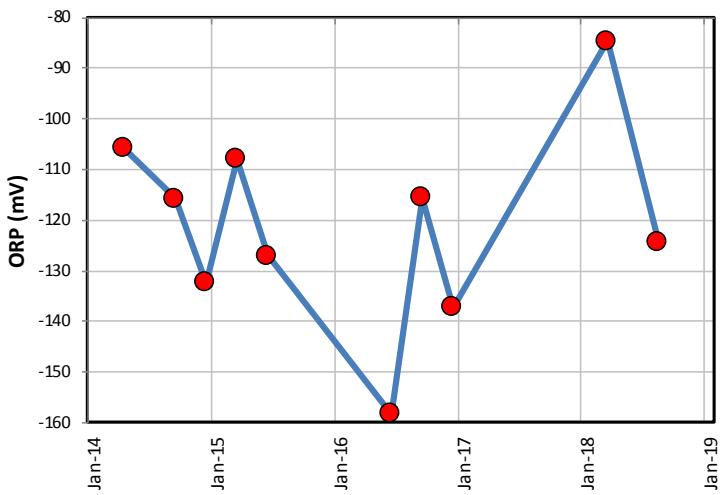
ORP in MW-602S



ORP in MW-603D



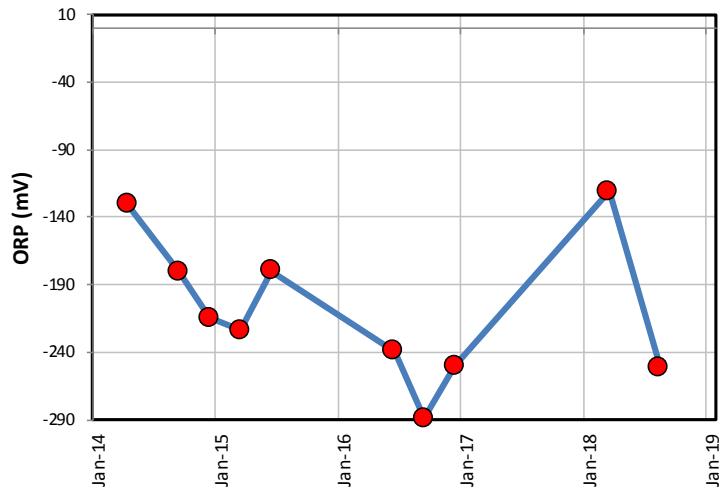
ORP in MW-603S



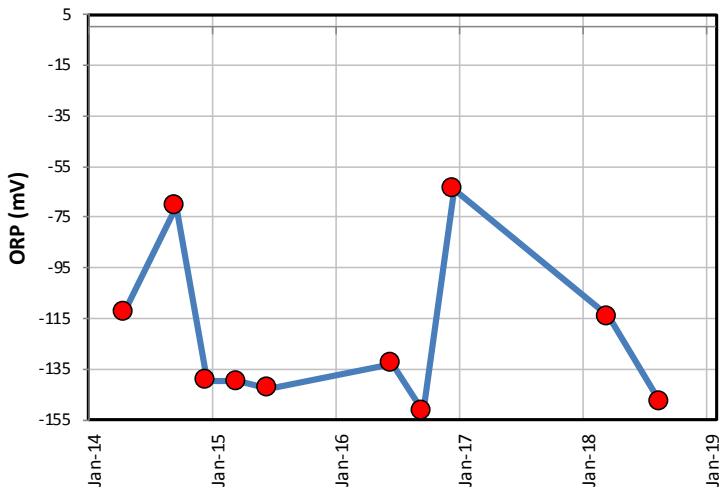
ORP = oxidation reduction potential in millivolts (mV)

ORP Trends –Performance and Site Wide Monitoring Wells (2014-2018)

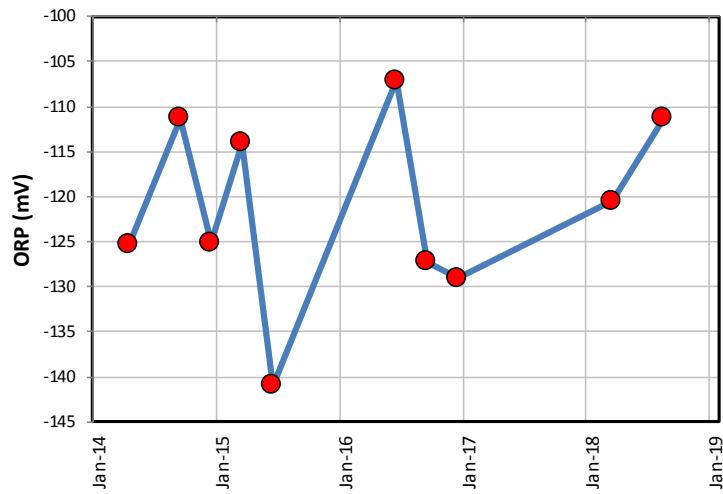
ORP in MW-604D



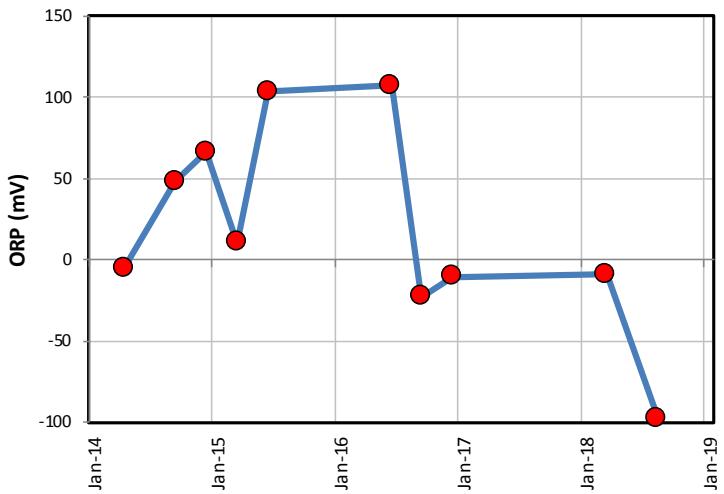
ORP in MW-604S



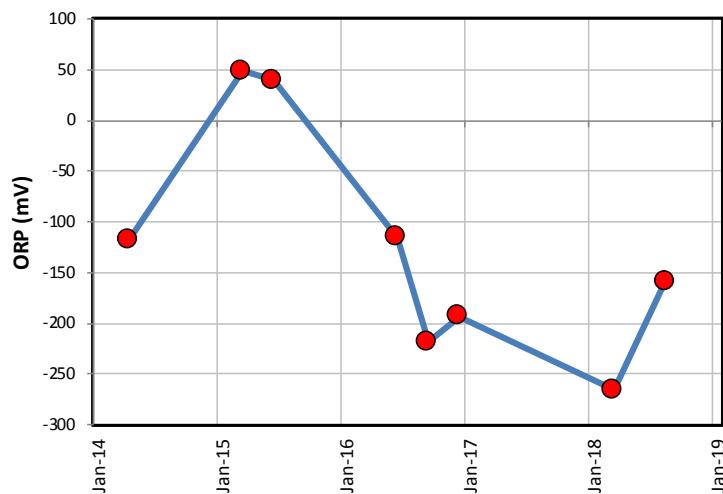
ORP in MW-605D



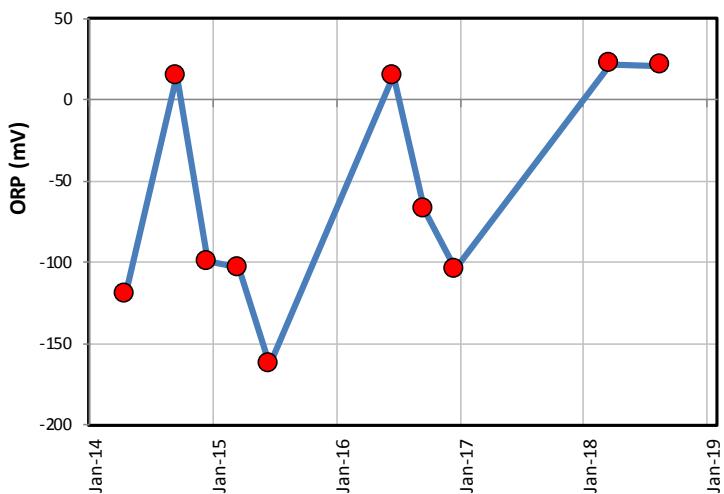
ORP in MW-605S



ORP in MW-606D



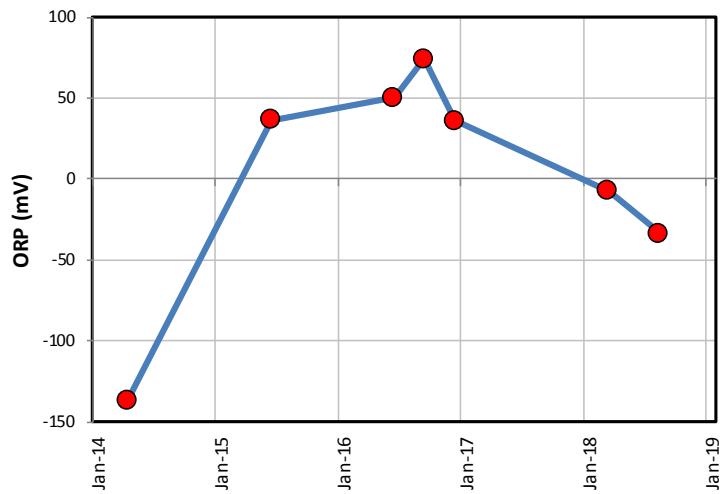
ORP in MW-606S



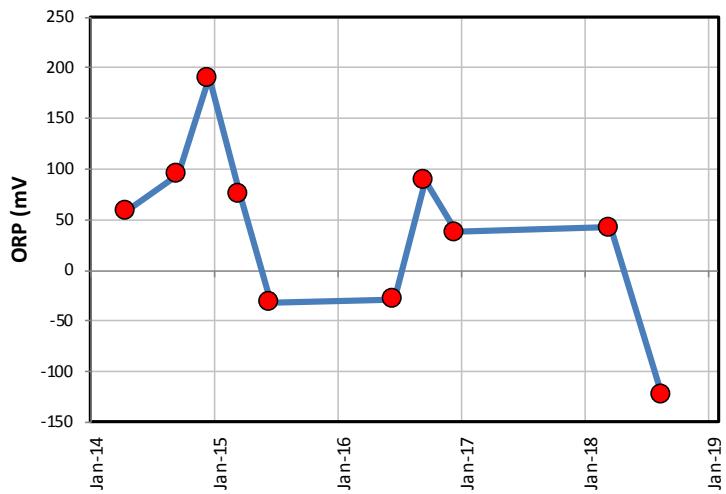
ORP = oxidation reduction potential in millivolts (mV)

ORP Trends –Performance and Site Wide Monitoring Wells (2014-2018)

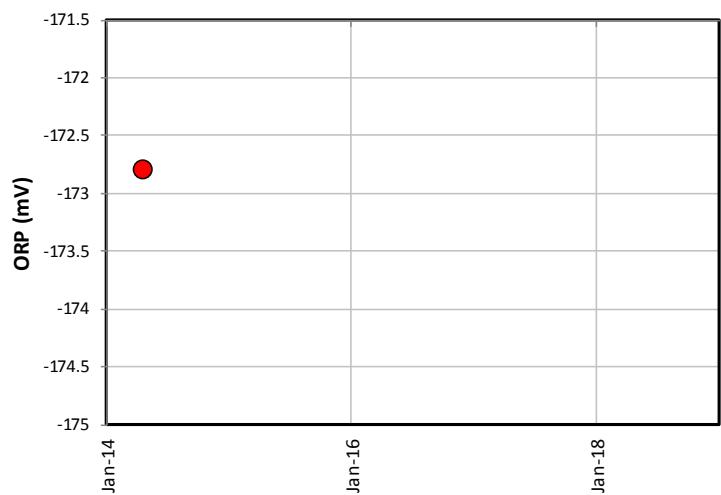
ORP in MW-607D



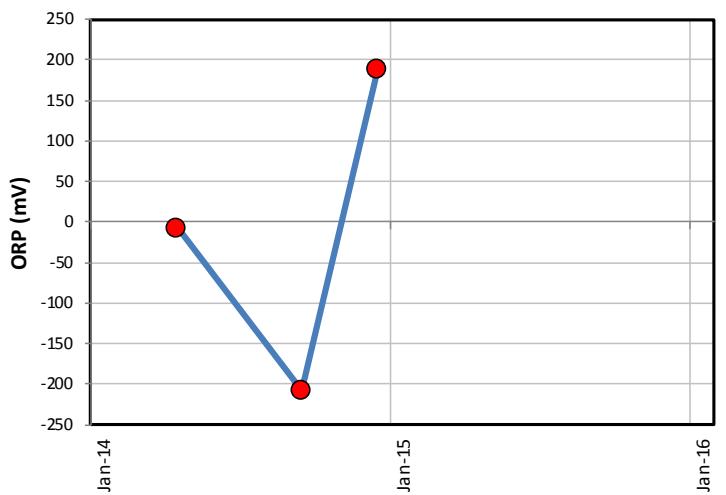
ORP in MW-607S



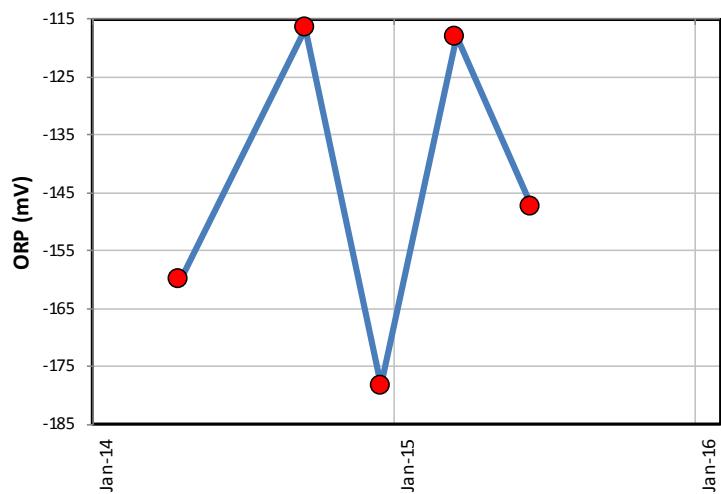
ORP in MW-608D



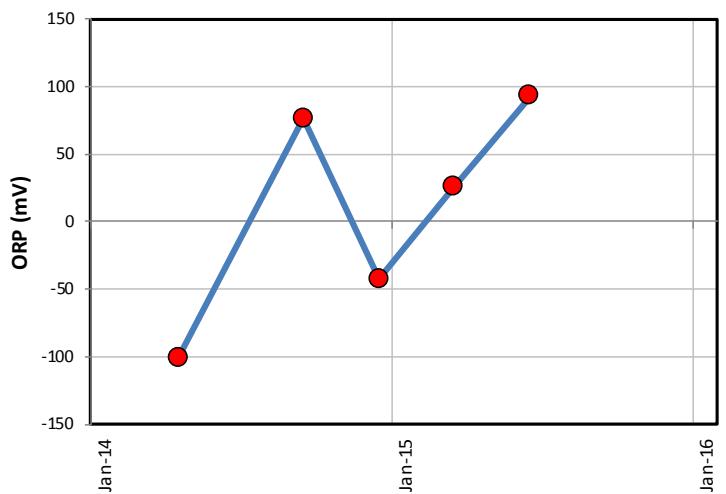
ORP in MW-608S



ORP in MW-609D



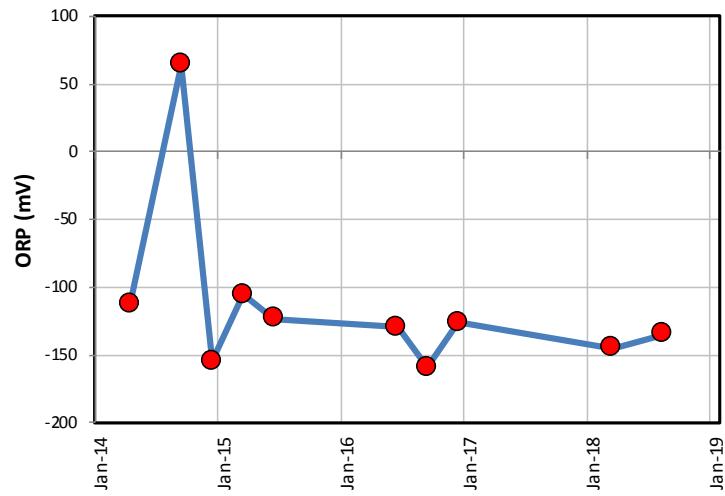
ORP in MW-609S



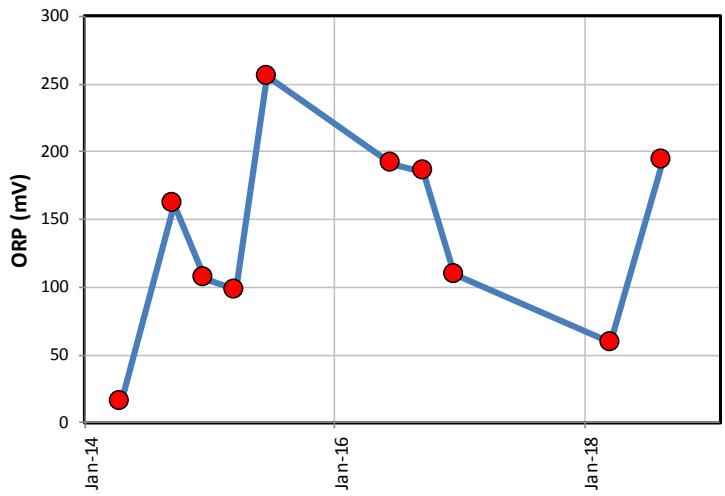
ORP = oxidation reduction potential in millivolts (mV)

ORP Trends –Performance and Site Wide Monitoring Wells (2014-2018)

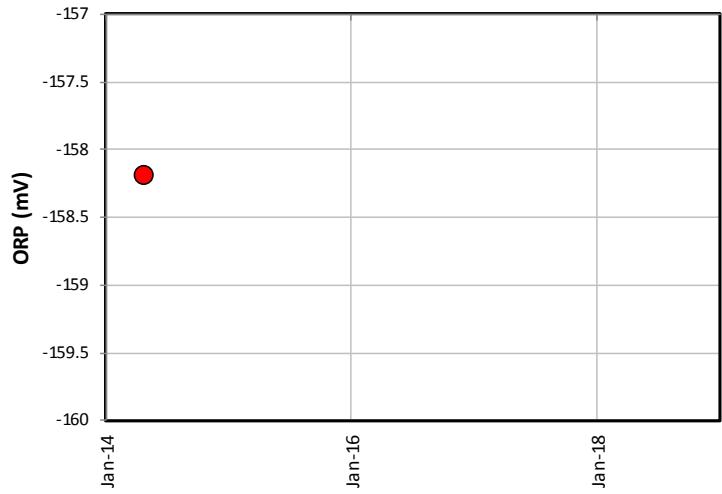
ORP in MW-610D



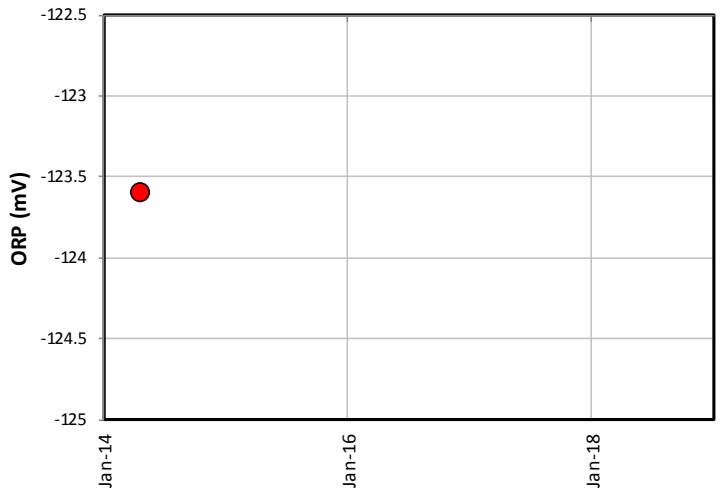
ORP in MW-610S



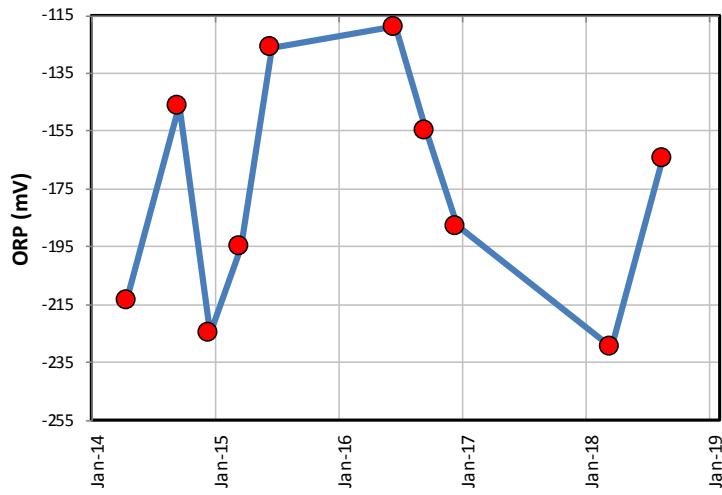
ORP in MW-611D



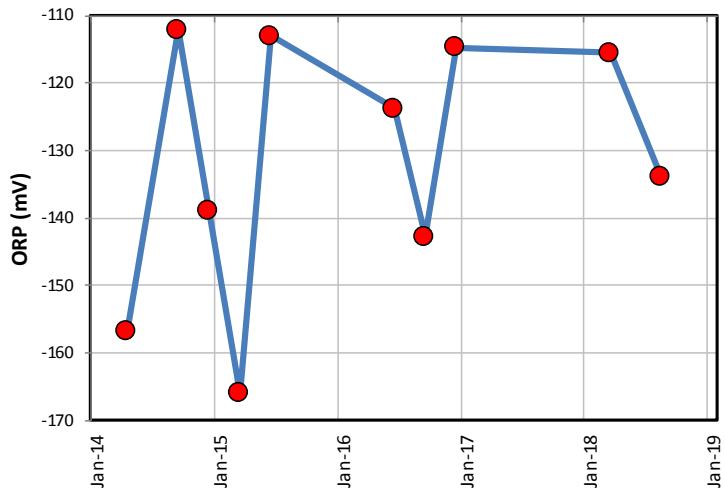
ORP in MW-611S



ORP in MW-612D



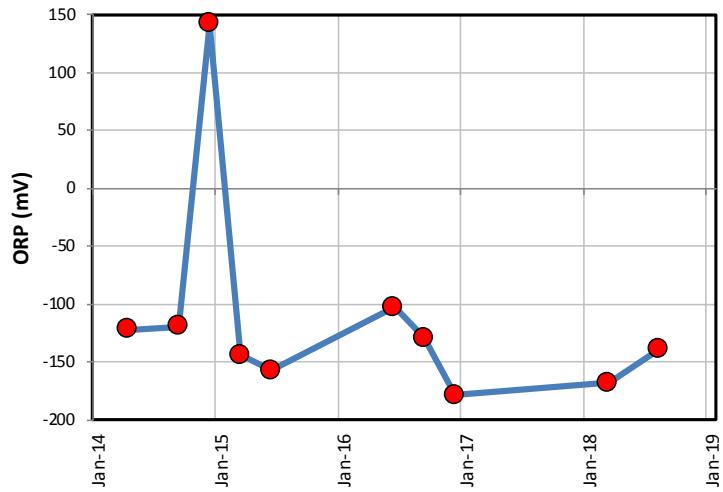
ORP in MW-612S



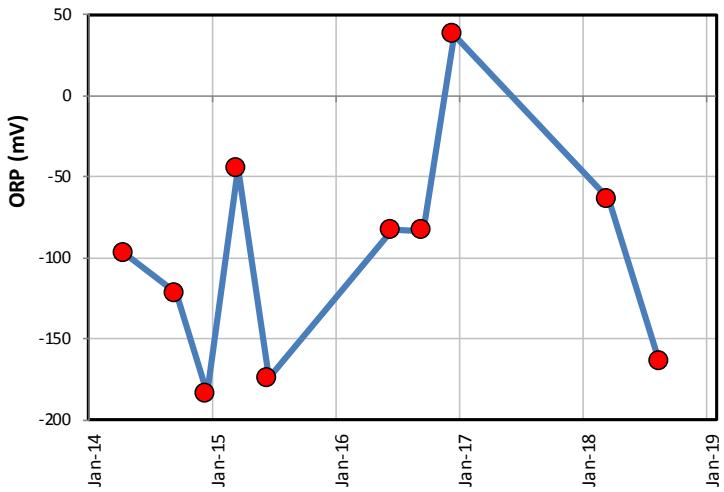
ORP = oxidation reduction potential in millivolts (mV)

ORP Trends –Performance and Site Wide Monitoring Wells (2014-2018)

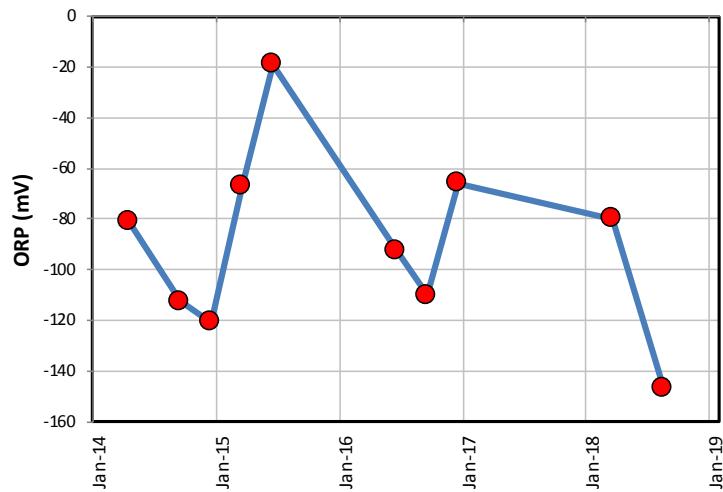
ORP in MW-613D



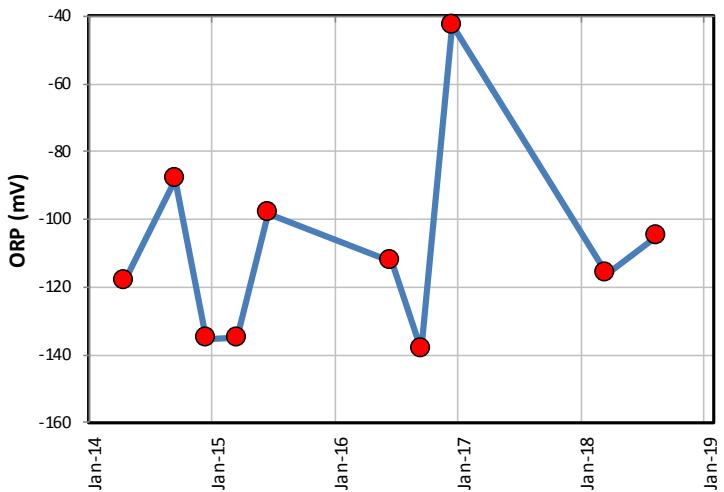
ORP in MW-613S



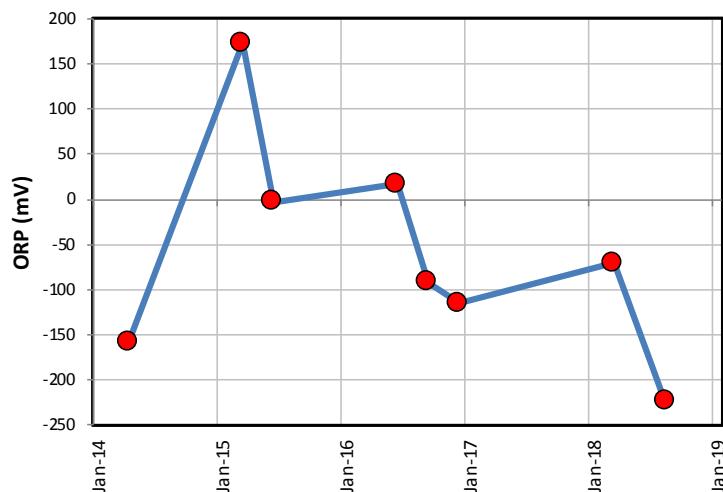
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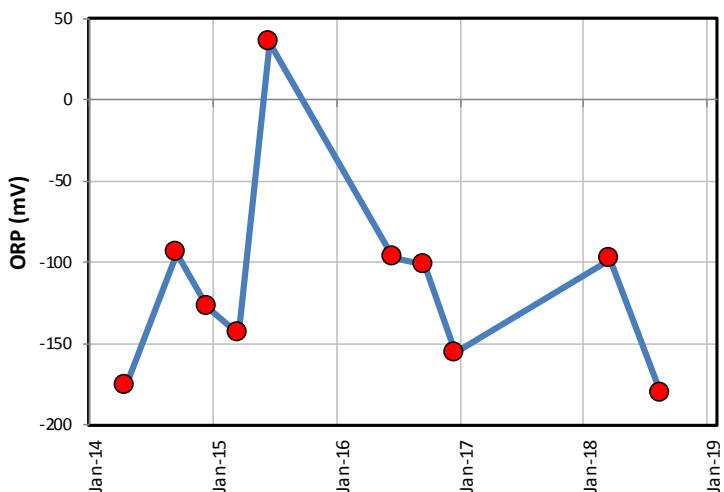
ORP in MW-614S



ORP in MW-615D



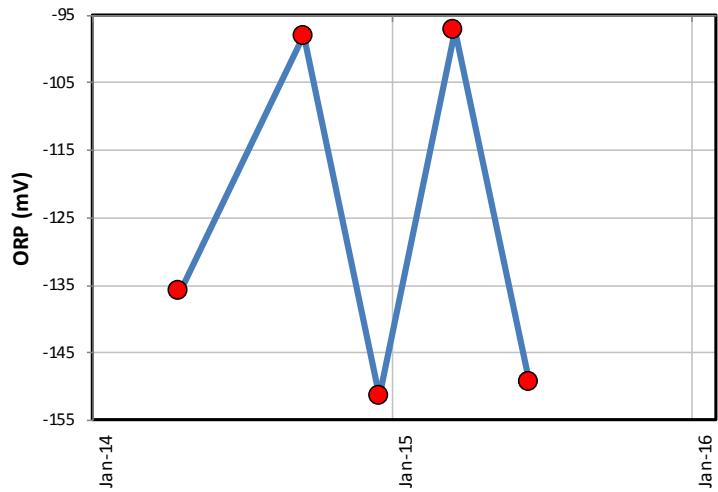
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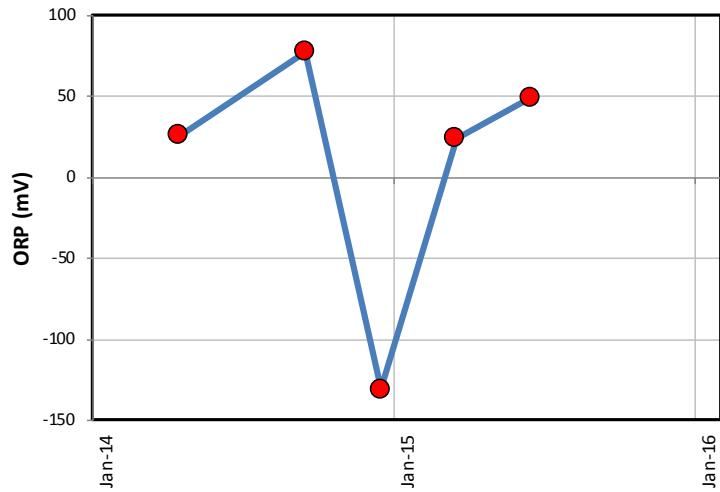
ORP = oxidation reduction potential in millivolts (mV)

ORP Trends –Performance and Site Wide Monitoring Wells (2014-2018)

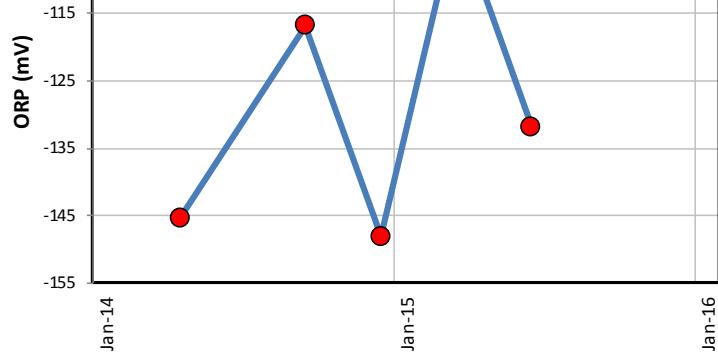
ORP in MW-616D



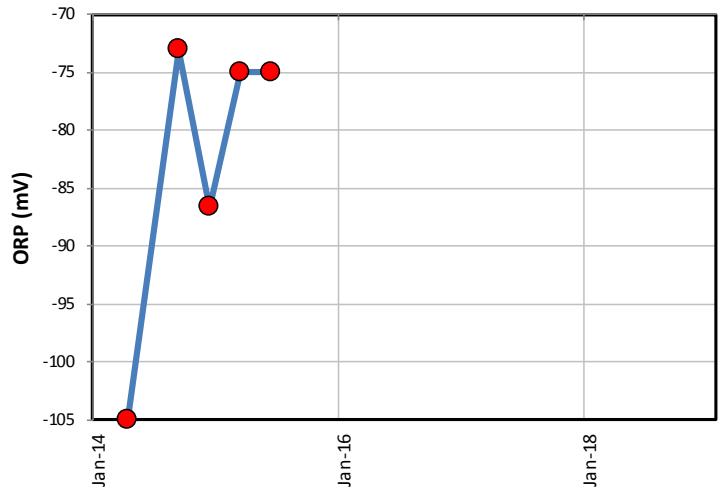
ORP in MW-616S



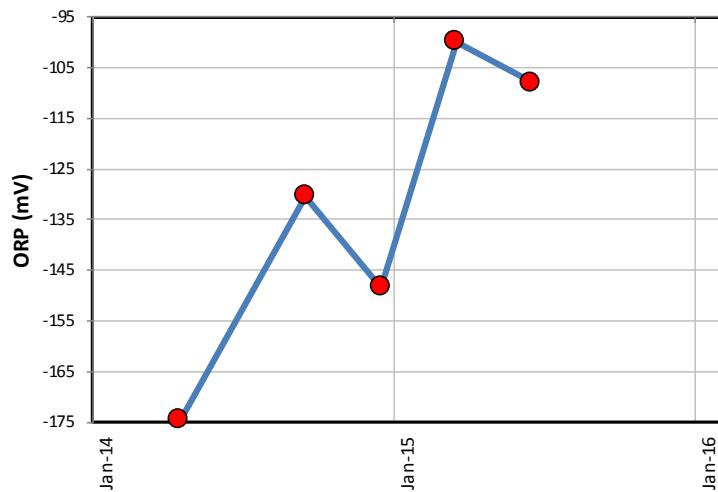
ORP in MW-617D



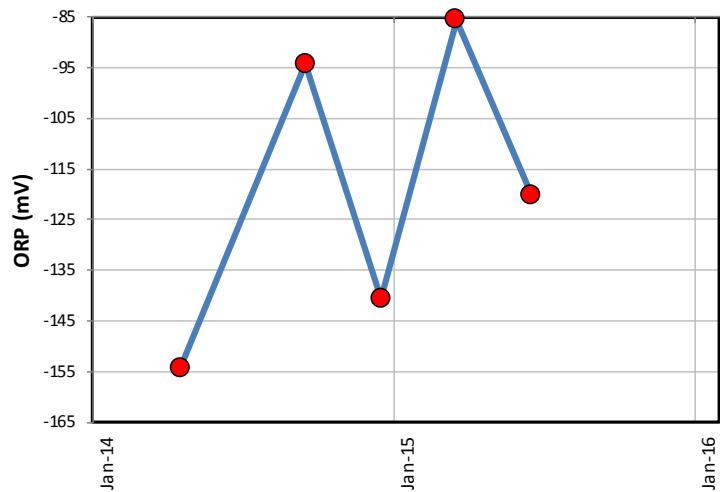
ORP in MW-617S



ORP in MW-618D



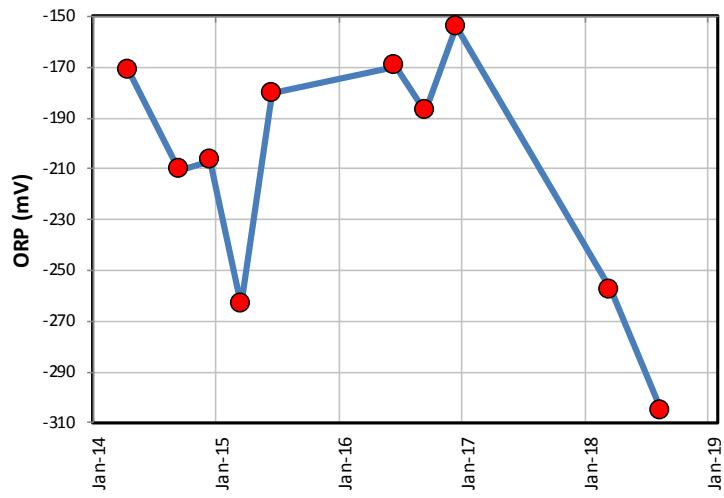
ORP in MW-618S



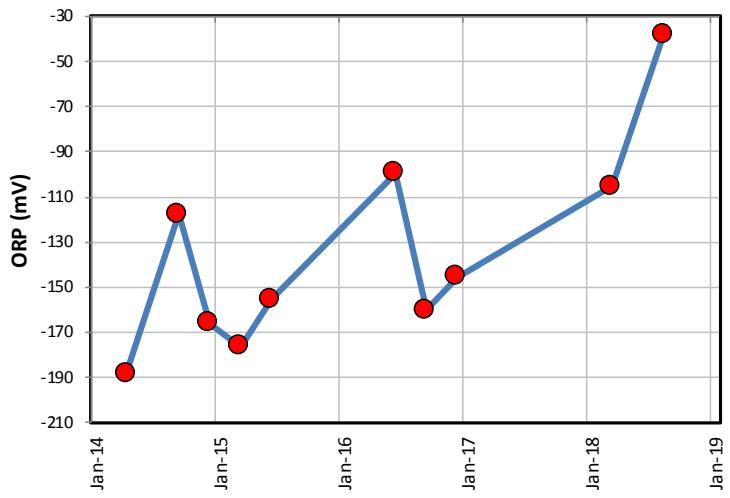
ORP = oxidation reduction potential in millivolts (mV)

ORP Trends –Performance and Site Wide Monitoring Wells (2014-2018)

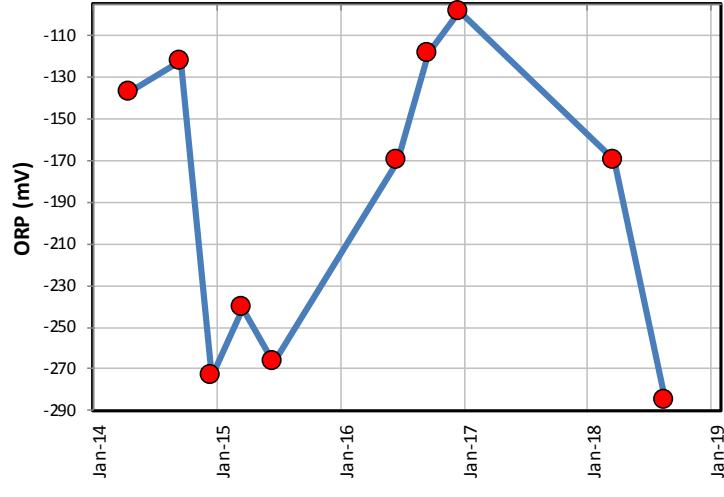
ORP in MW-619D



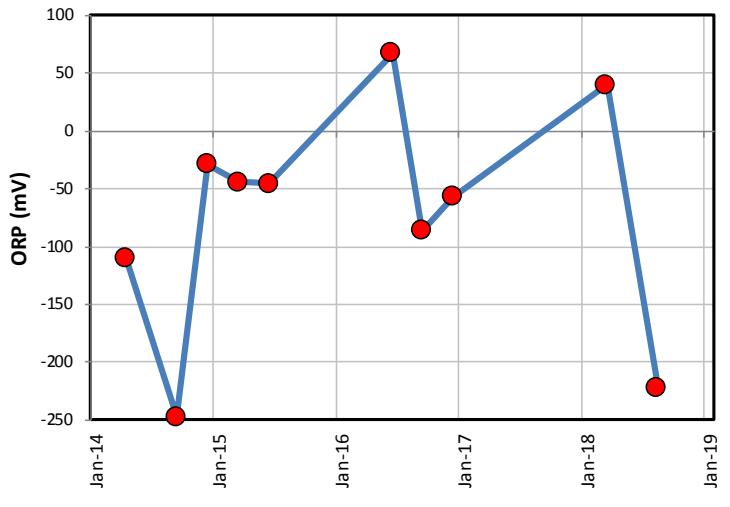
ORP in MW-619S



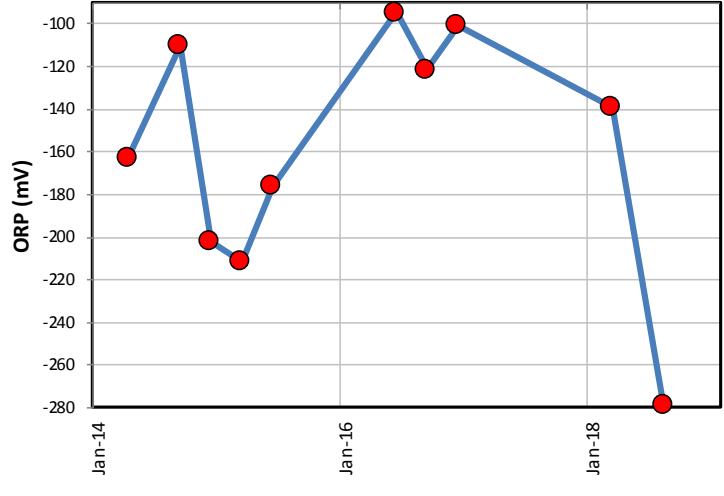
ORP in MW-620D



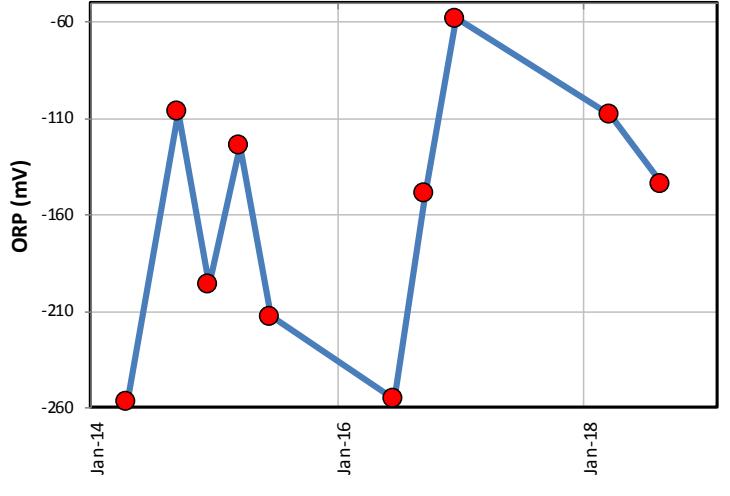
ORP in MW-620S



ORP in MW-621D

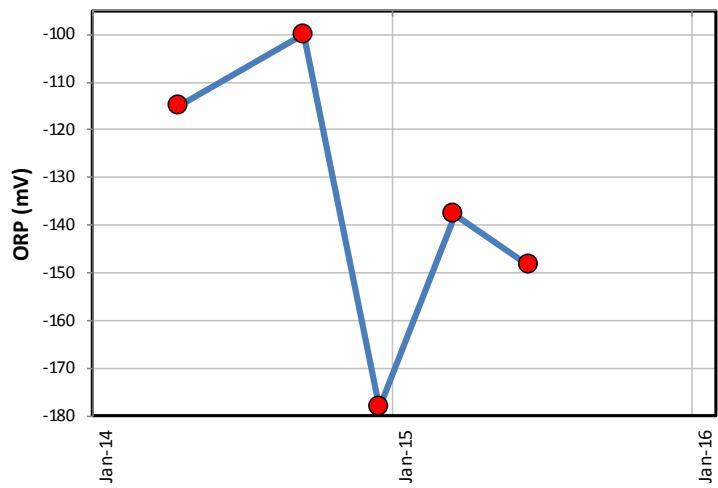


ORP in MW-621S

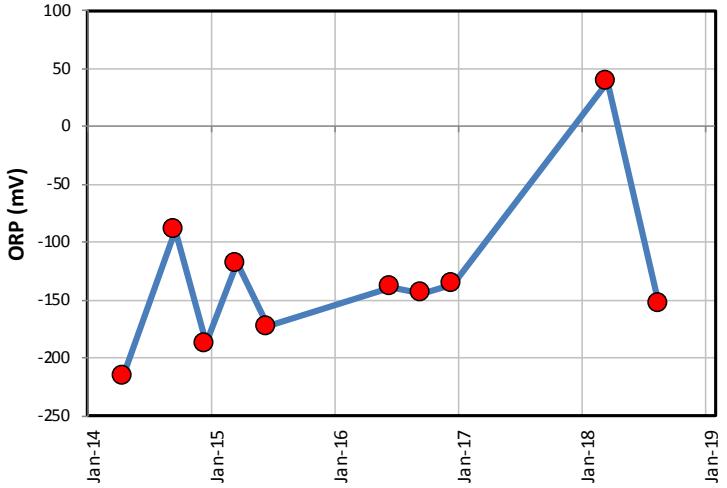


ORP Trends –Performance and Site Wide Monitoring Wells (2014-2018)

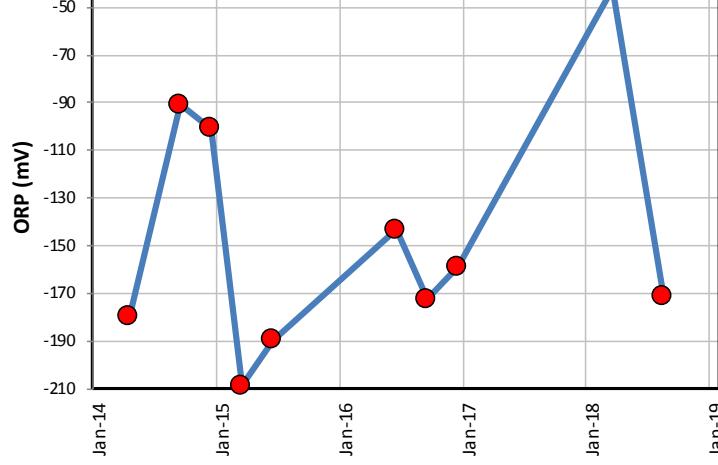
ORP in MW-622S



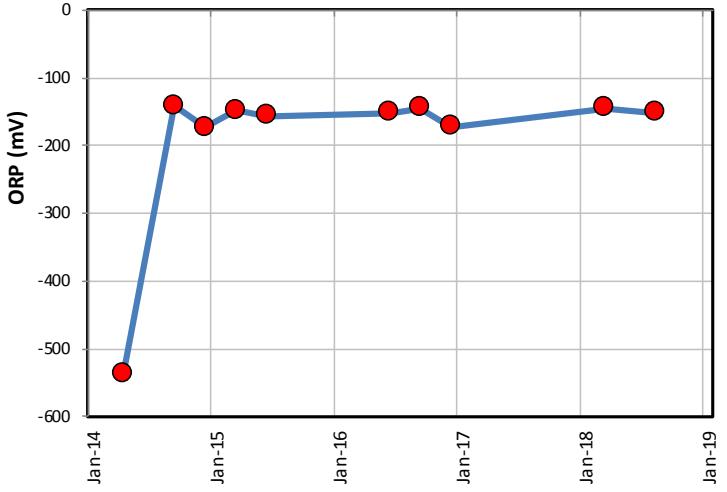
ORP in MW-623D



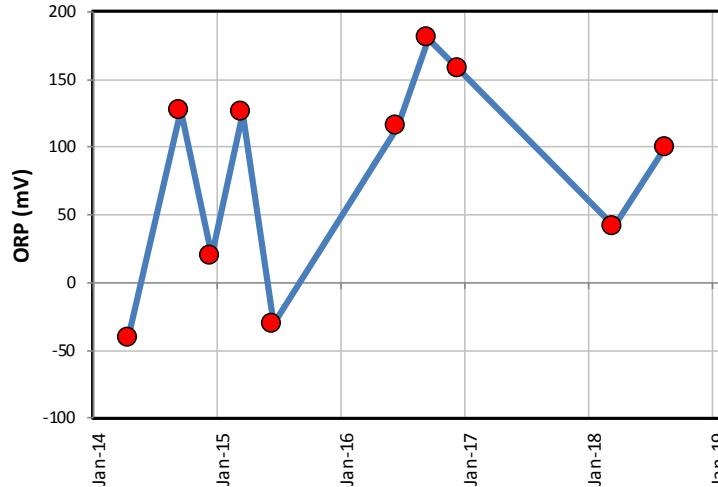
ORP in MW-623S



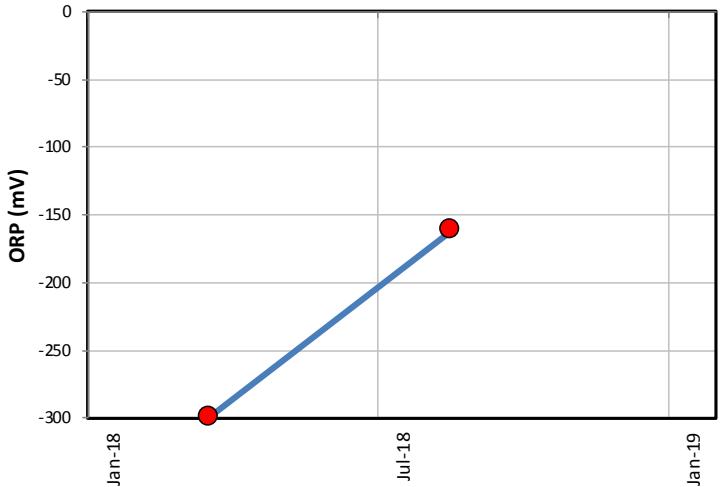
ORP in MW-624D



ORP in MW-624S



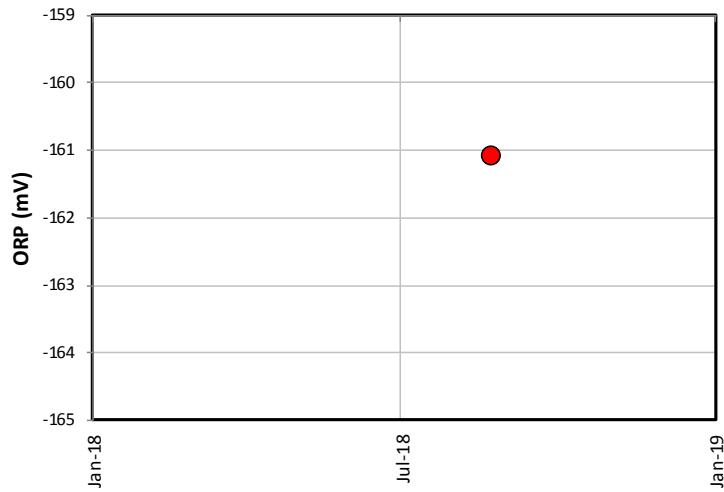
ORP in MW-625D



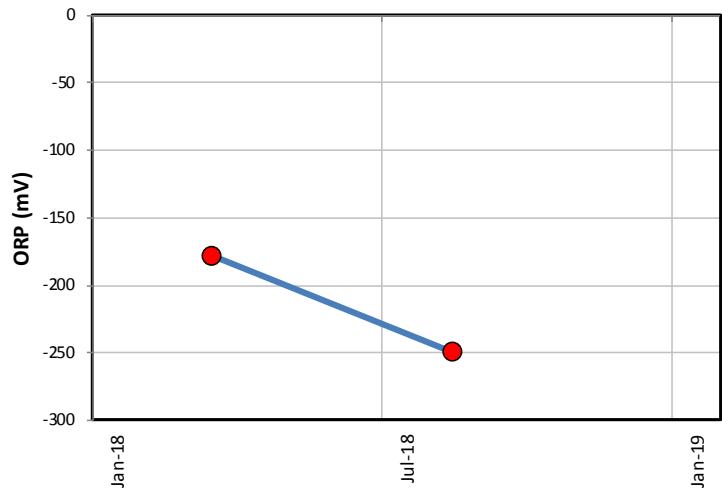
ORP = oxidation reduction potential in millivolts (mV)

ORP Trends –Performance and Site Wide Monitoring Wells (2014-2018)

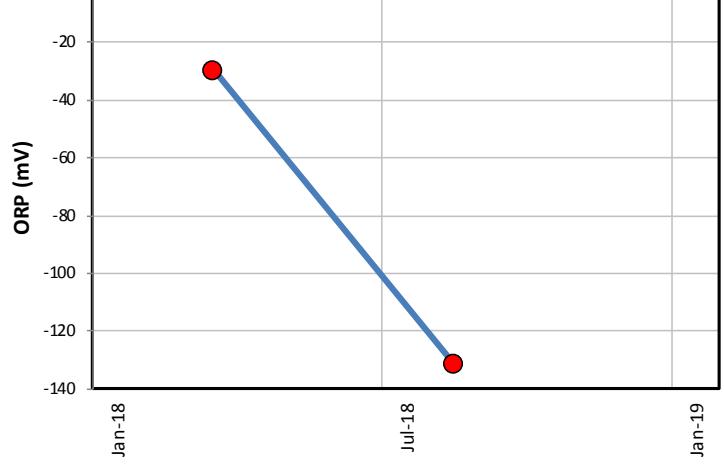
ORP in MW-625S



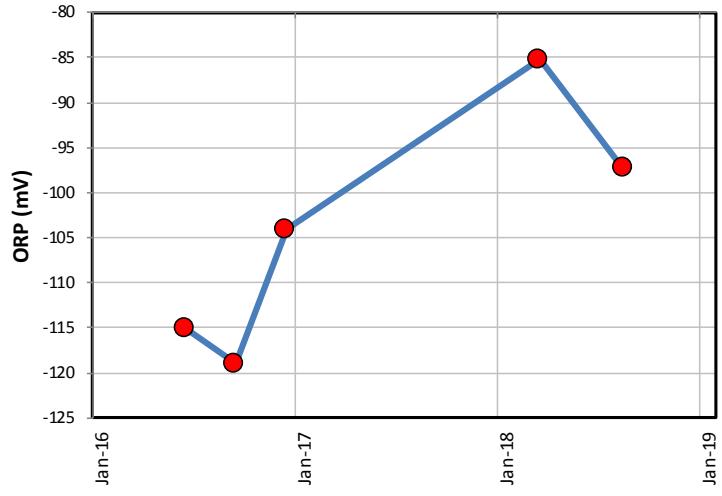
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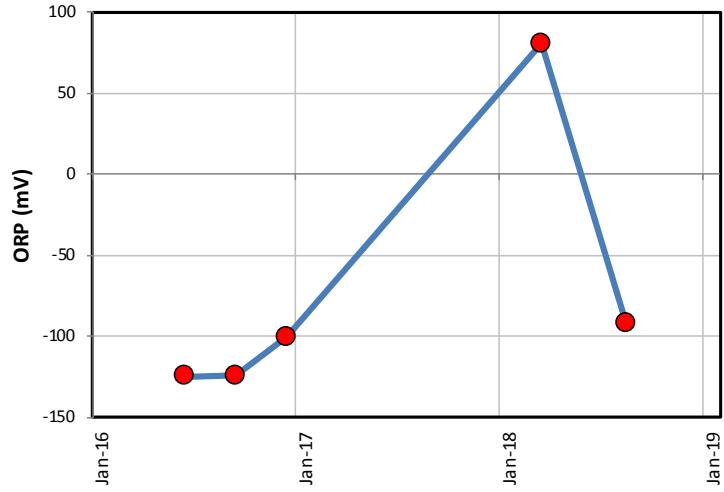
ORP in MW-626S



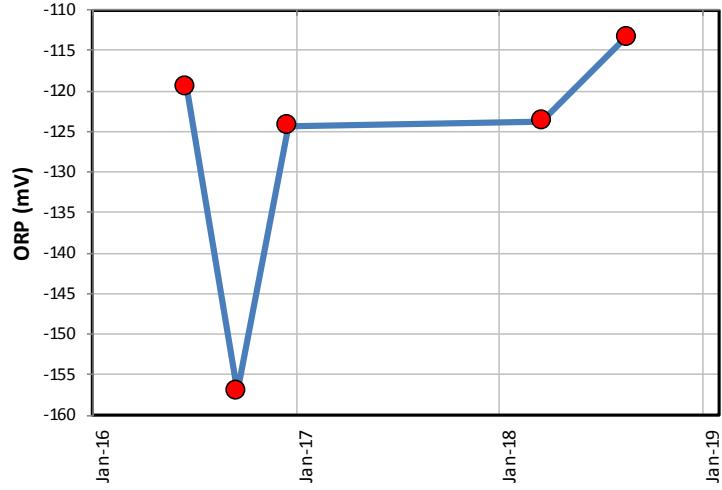
ORP in ST-MW-1D



ORP in ST-MW-1S



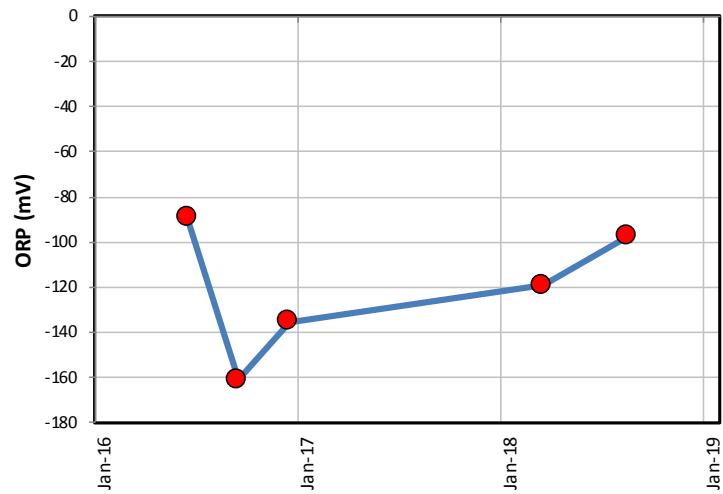
ORP in ST-MW-2D



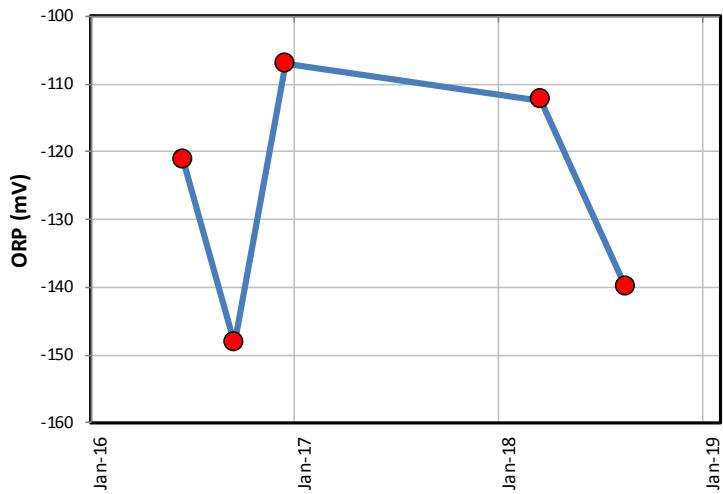
ORP = oxidation reduction potential in millivolts (mV)

ORP Trends –Performance and Site Wide Monitoring Wells (2014-2018)

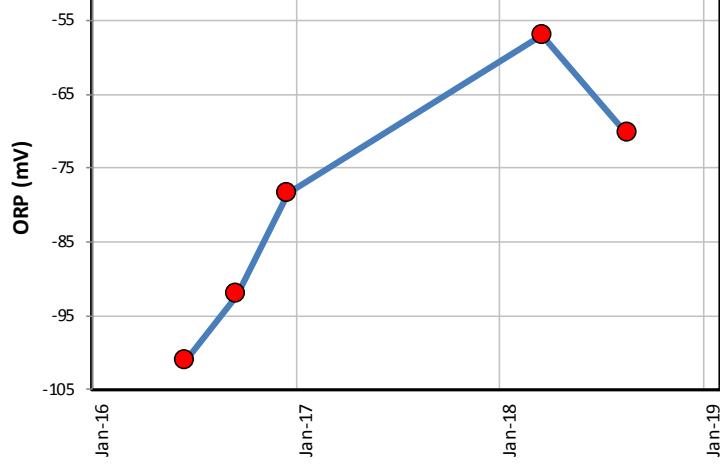
ORP in ST-MW-2S



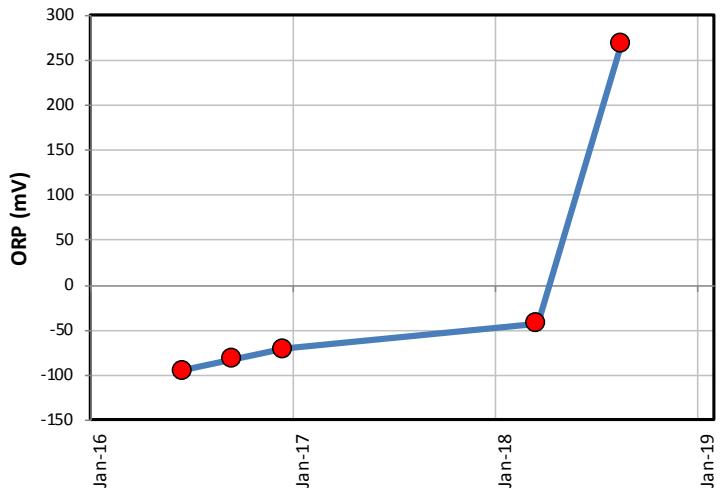
ORP in ST-MW-3D



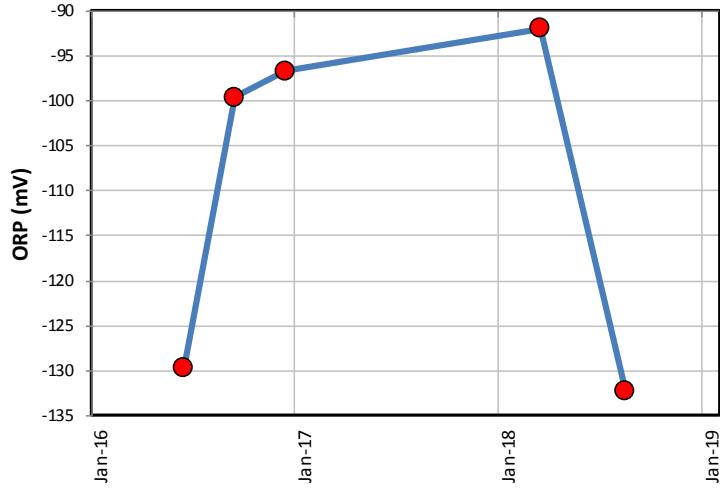
ORP in ST-MW-3S



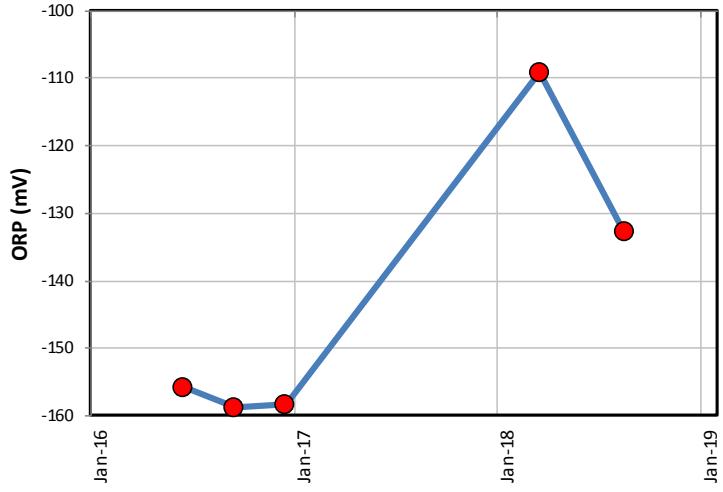
ORP in ST-MW-4D



ORP in ST-MW-4S



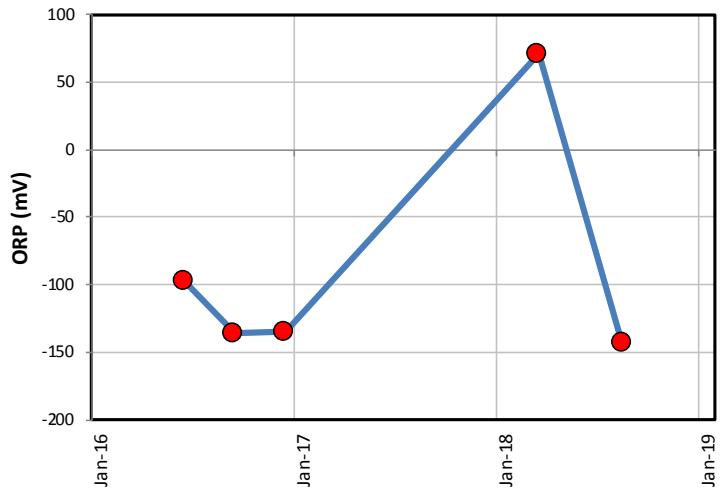
ORP in ST-MW-5D



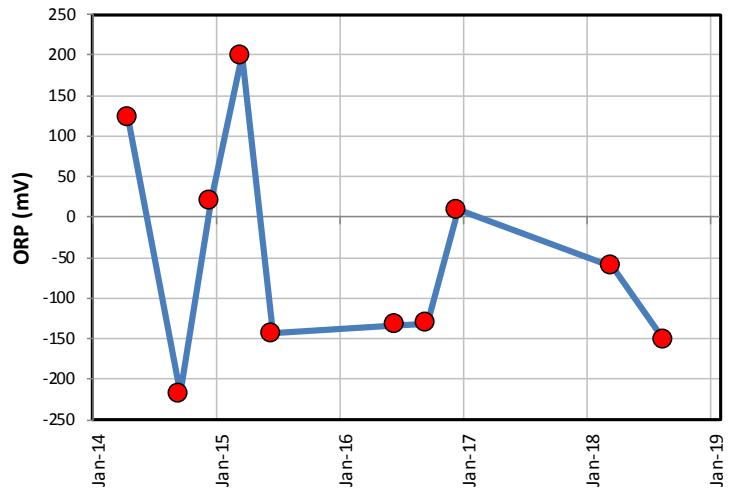
ORP = oxidation reduction potential in millivolts (mV)

ORP Trends –Performance and Site Wide Monitoring Wells (2014-2018)

ORP in ST-MW-5S



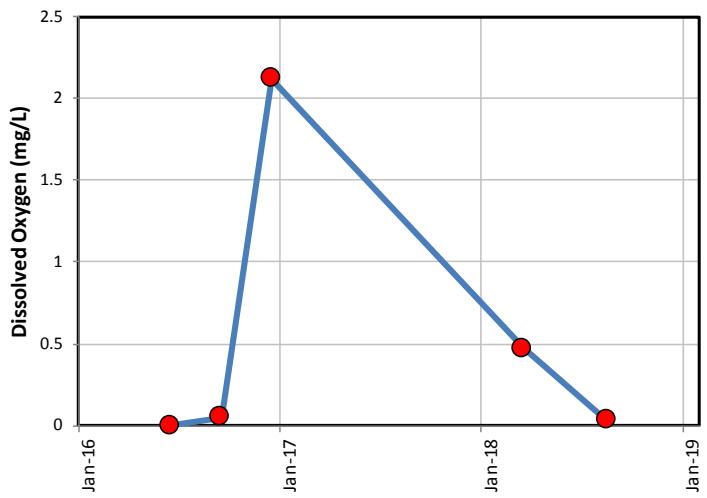
ORP in W-5



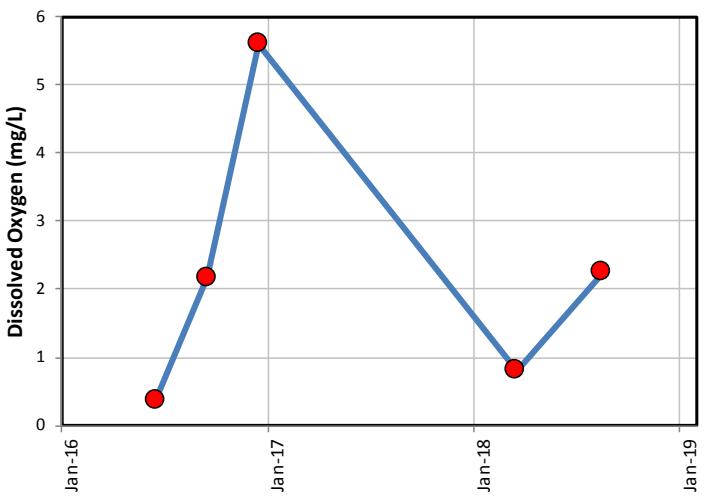
ORP = oxidation reduction potential in millivolts (mV)

DO Trends –Performance and Site Wide Monitoring Wells (2014-2018)

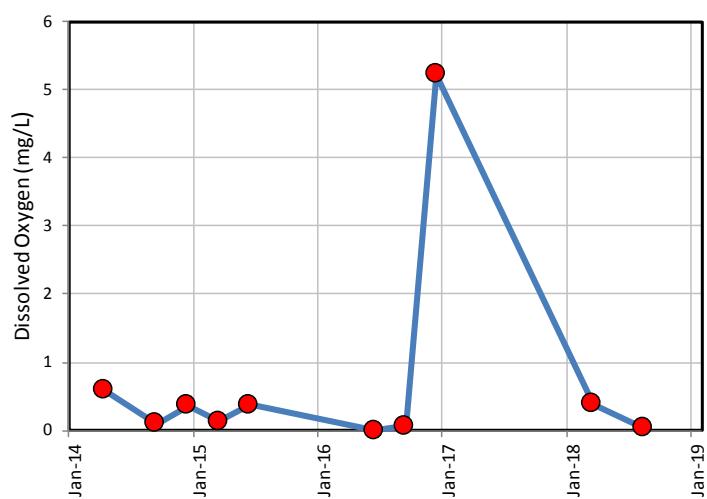
DO in MW-003D



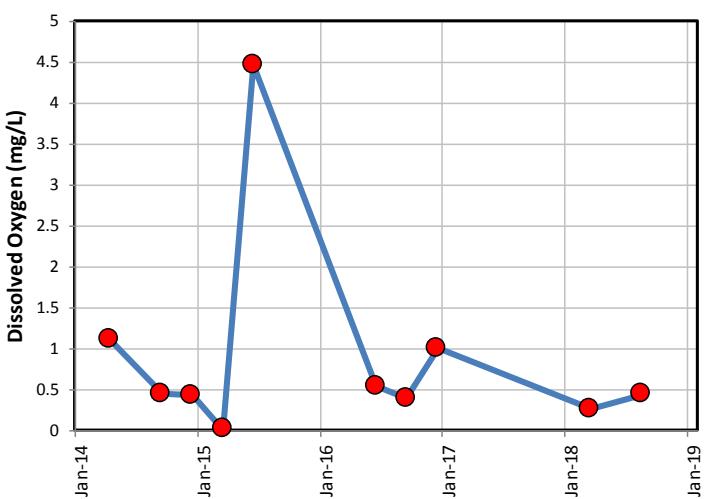
DO in MW-003S



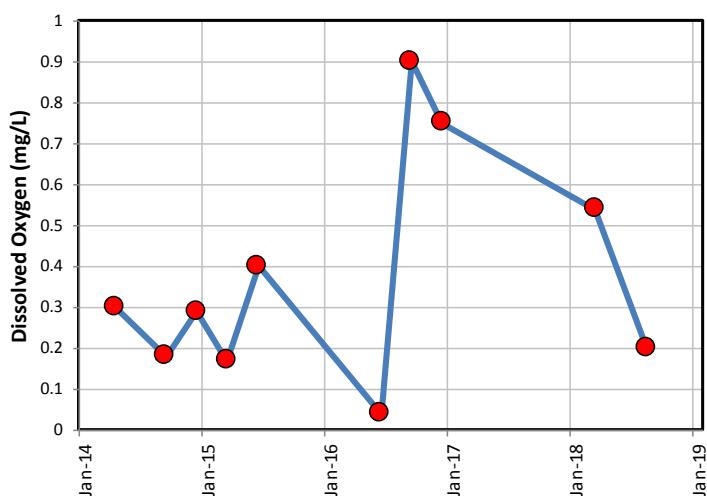
DO in MW-011D



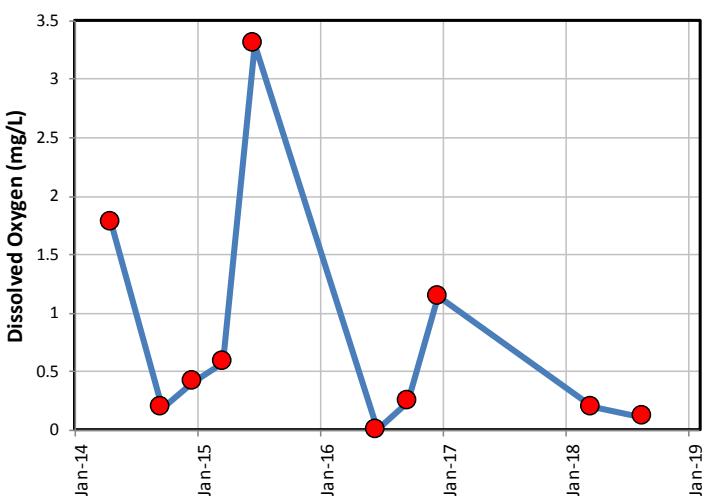
DO in MW-011S



DO in MW-501D



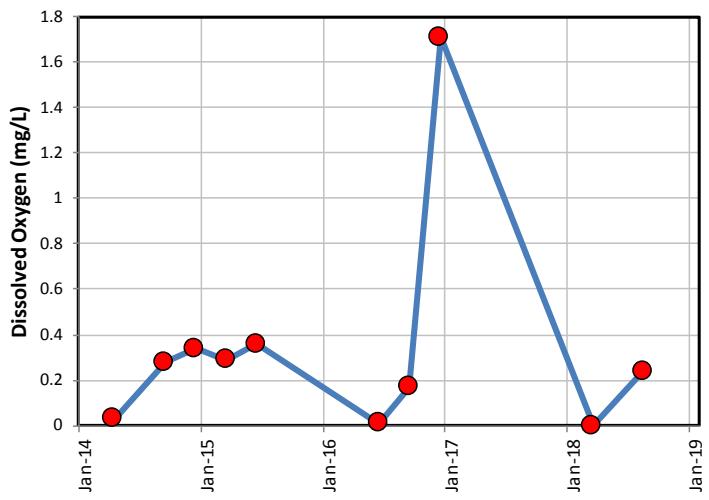
DO in MW-501S



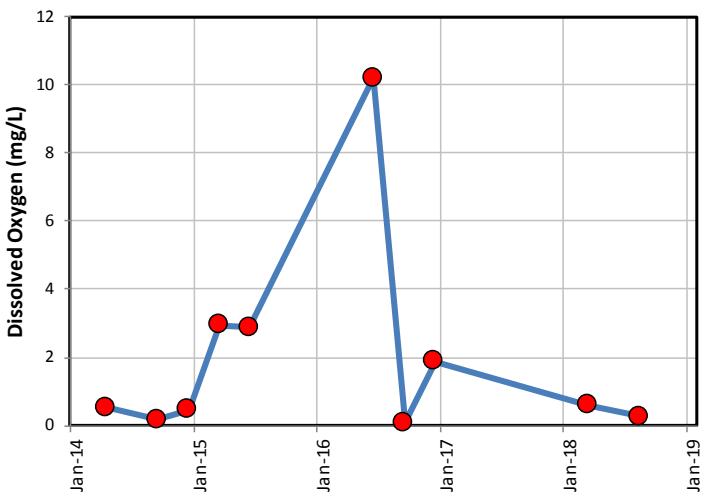
DO = dissolved oxygen in milligram per liter (mg/L)

DO Trends –Performance and Site Wide Monitoring Wells (2014-2018)

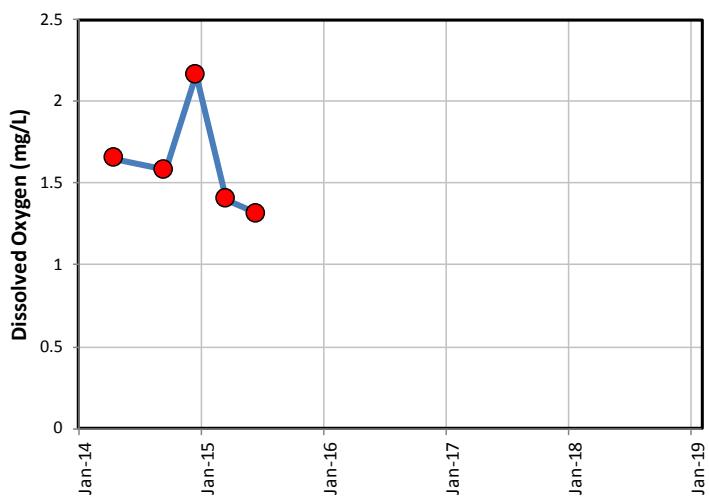
DO in MW-513D



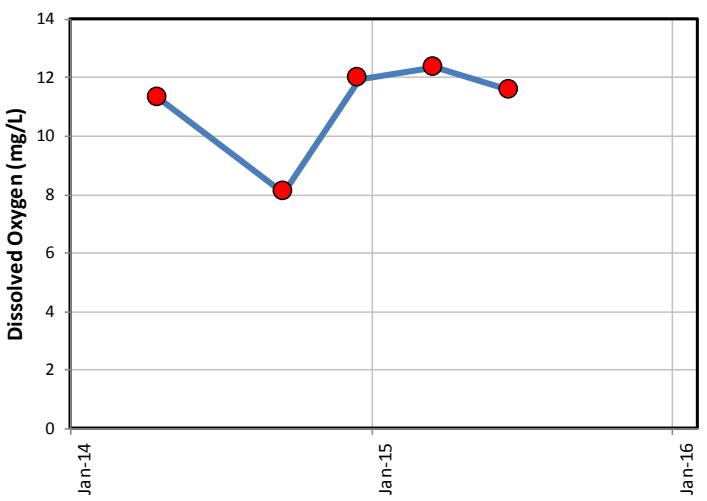
DO in MW-513S



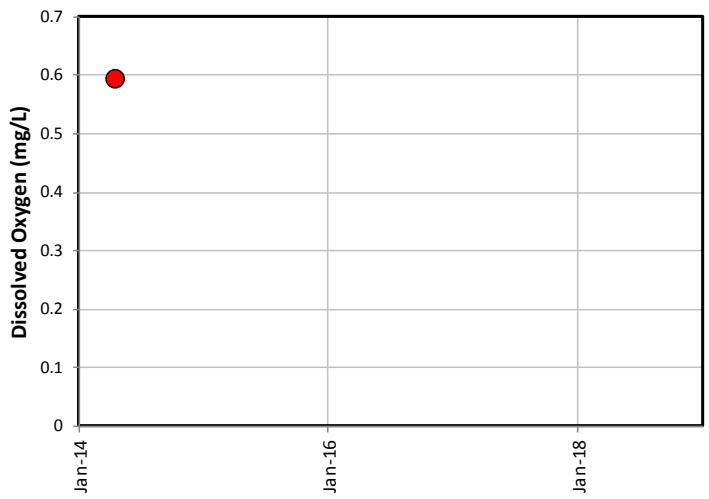
DO in MW-514D



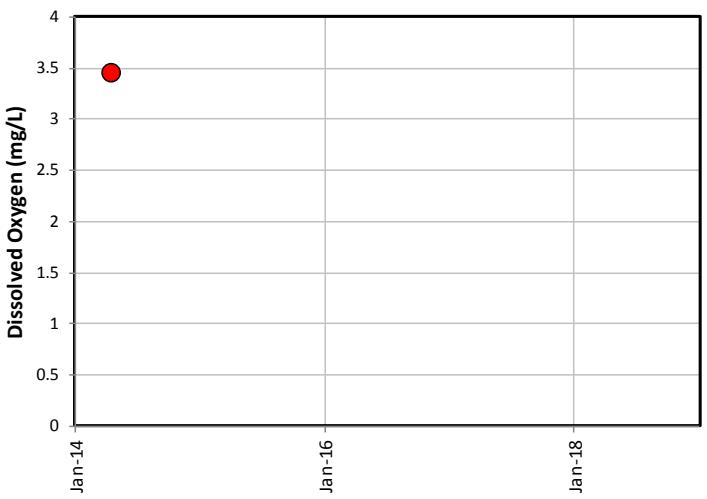
DO in MW-514S



DO in MW-515D



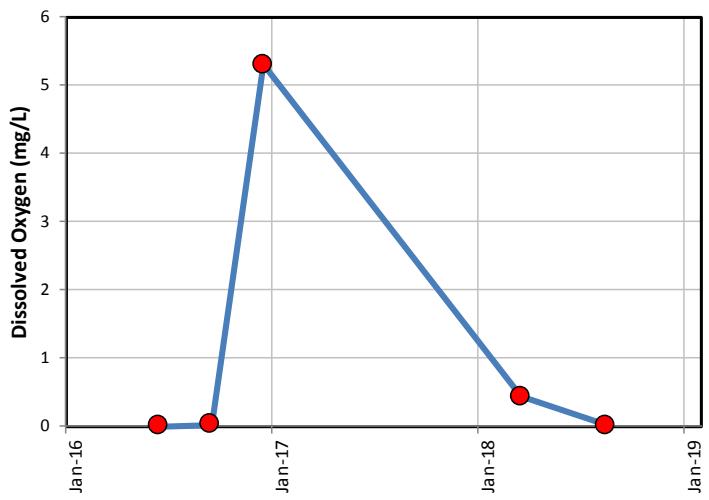
DO in MW-515S



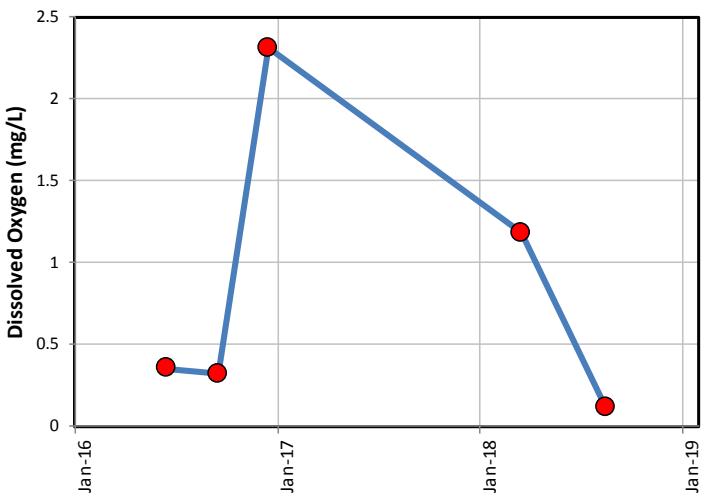
DO = dissolved oxygen in milligram per liter (mg/L)

DO Trends –Performance and Site Wide Monitoring Wells (2014-2018)

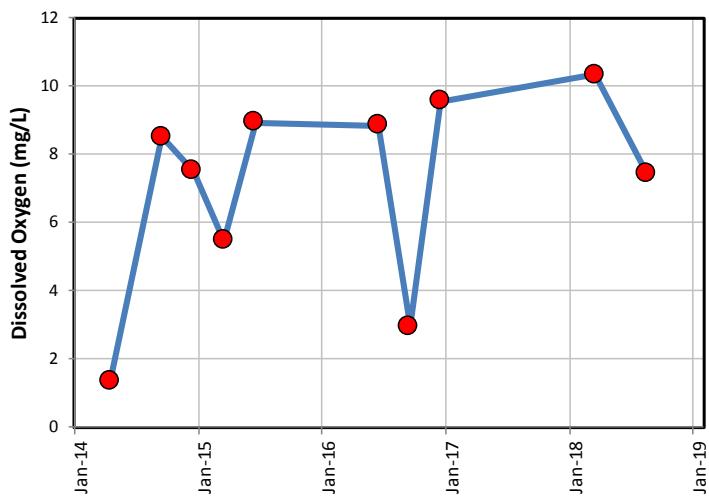
DO in MW-516D



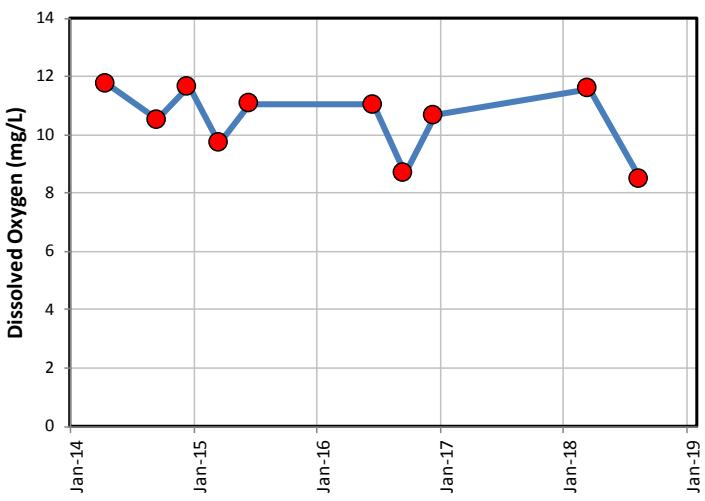
DO in MW-516S



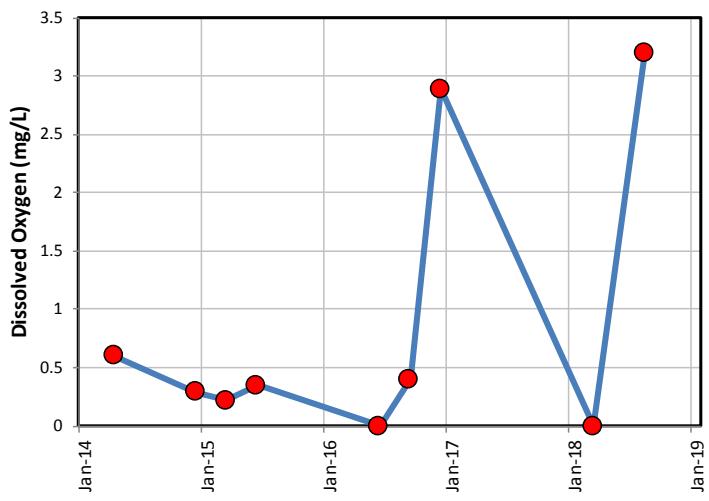
DO in MW-528D



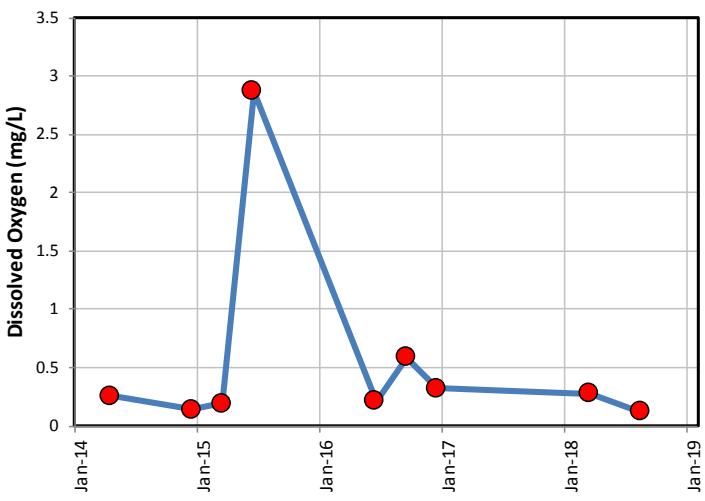
DO in MW-528S



DO in MW-600D



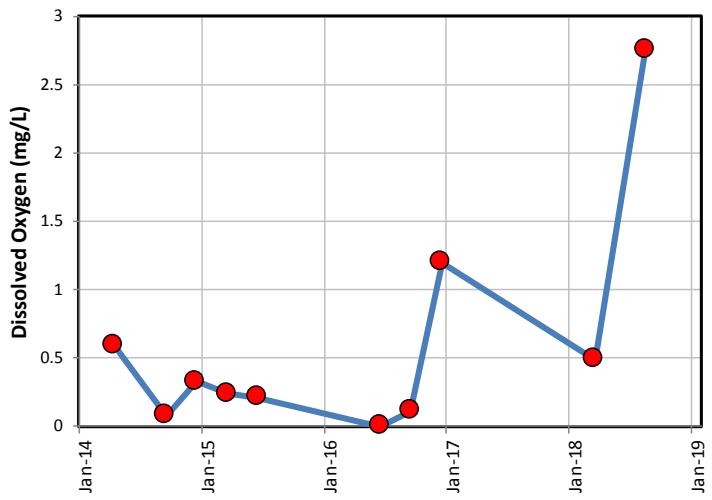
DO in MW-600S



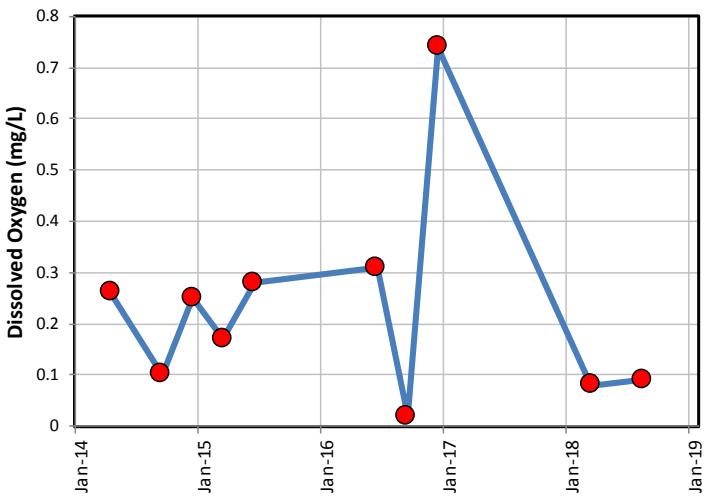
DO = dissolved oxygen in milligram per liter (mg/L)

DO Trends –Performance and Site Wide Monitoring Wells (2014-2018)

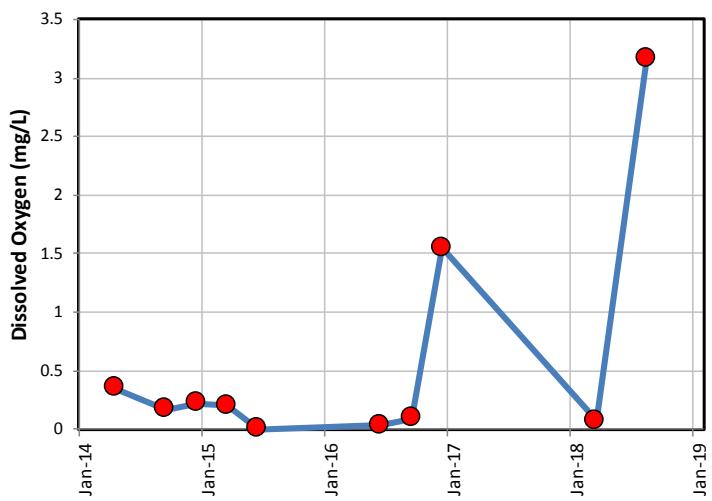
DO in MW-601D



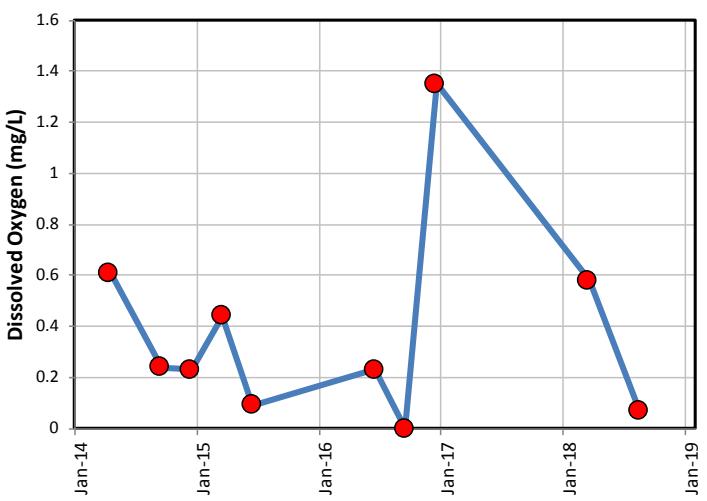
DO in MW-601S



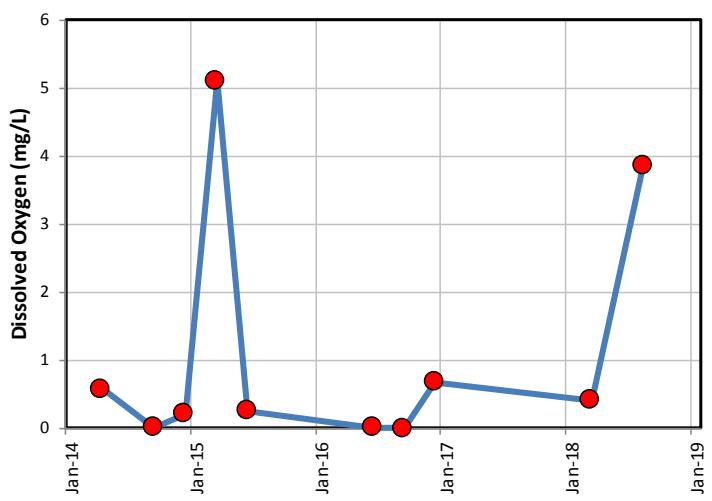
DO in MW-602D



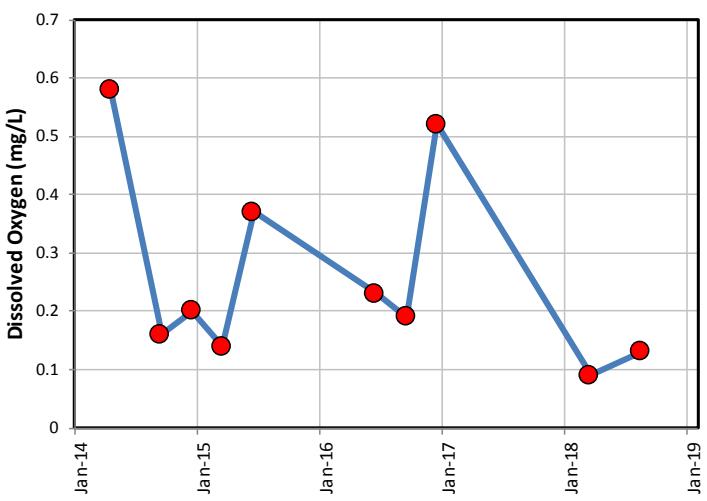
DO in MW-602S



DO in MW-603D



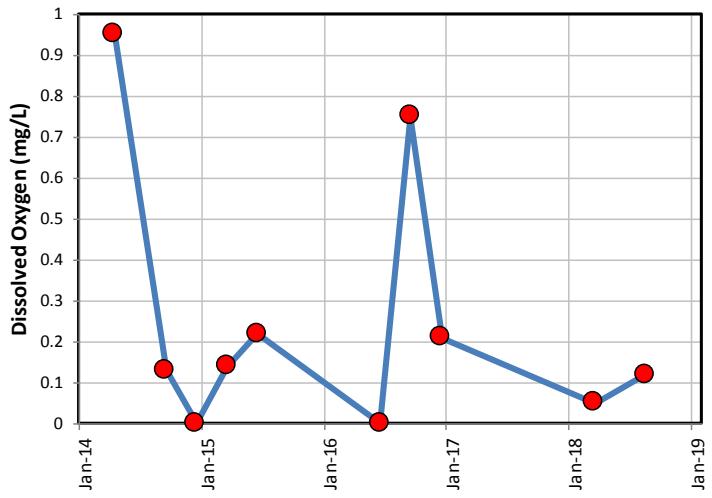
DO in MW-603S



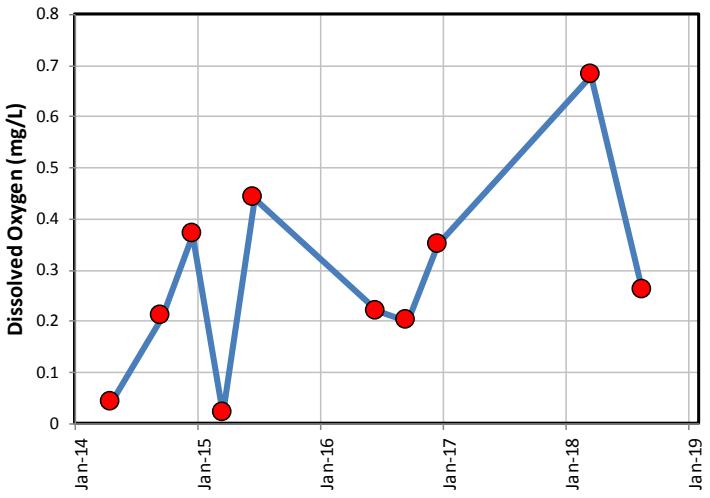
DO = dissolved oxygen in milligram per liter (mg/L)

DO Trends –Performance and Site Wide Monitoring Wells (2014-2018)

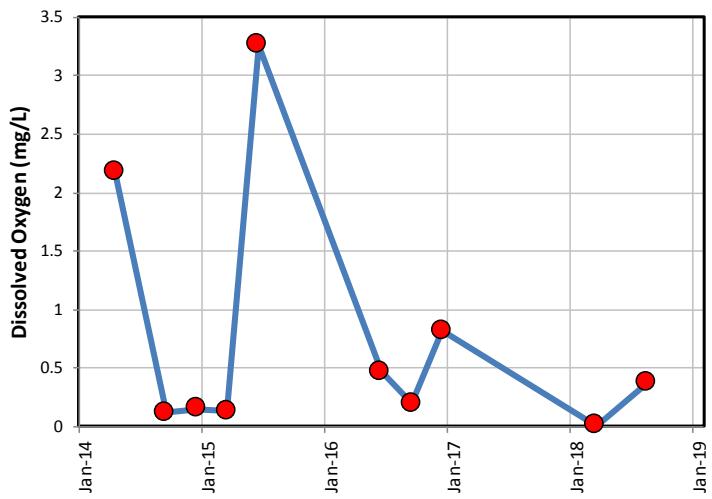
DO in MW-604D



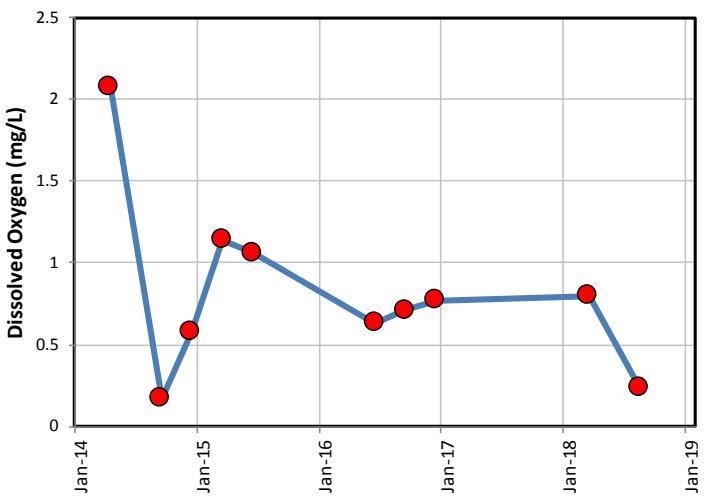
DO in MW-604S



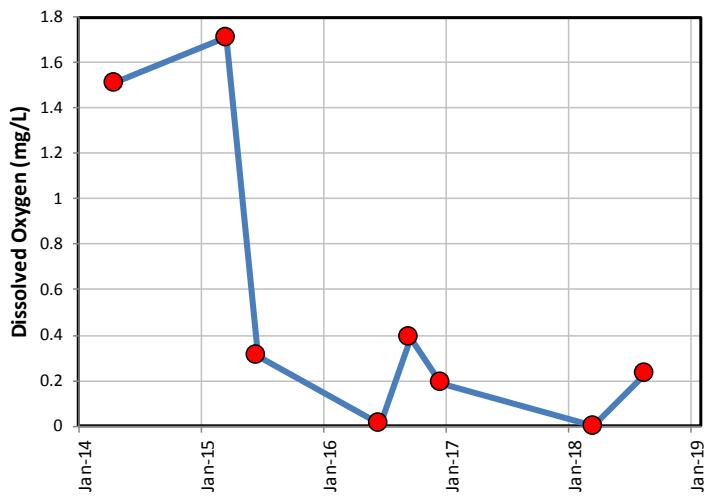
DO in MW-605D



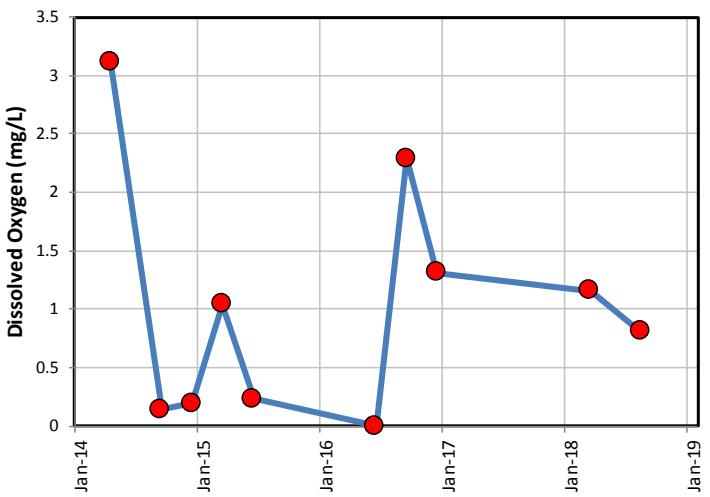
DO in MW-605S



DO in MW-606D



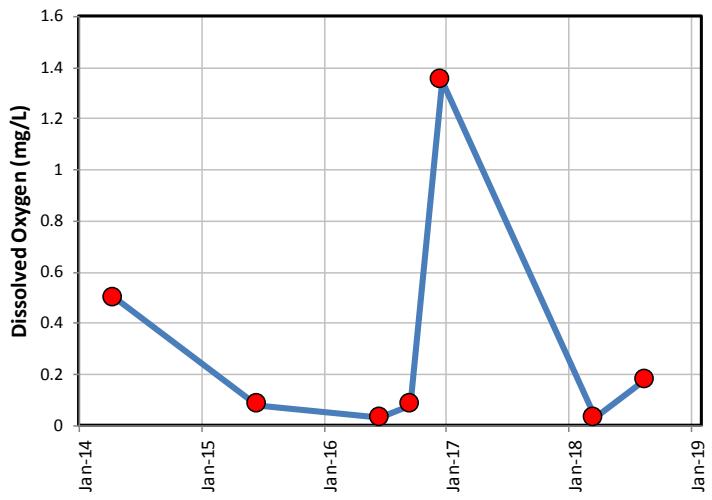
DO in MW-606S



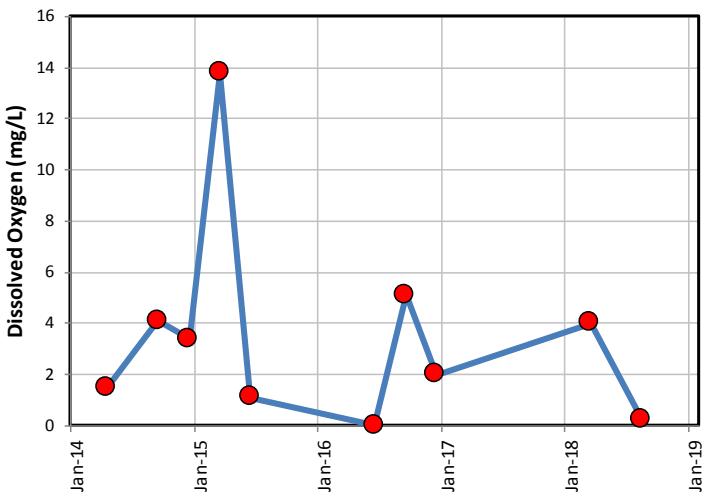
DO = dissolved oxygen in milligram per liter (mg/L)

DO Trends –Performance and Site Wide Monitoring Wells (2014-2018)

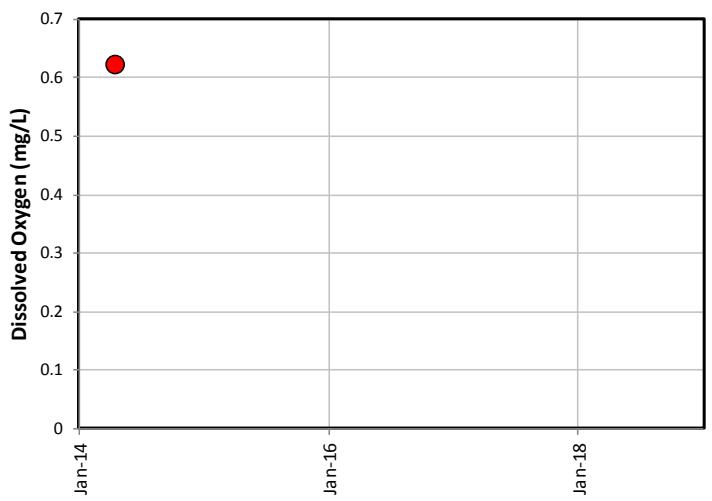
DO in MW-607D



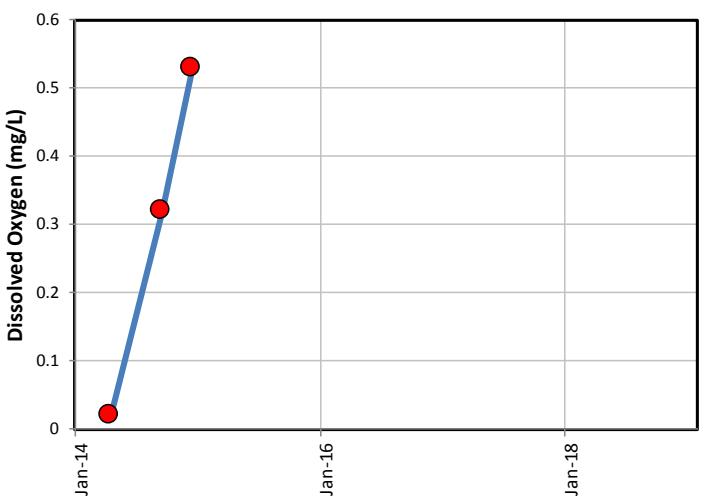
DO in MW-607S



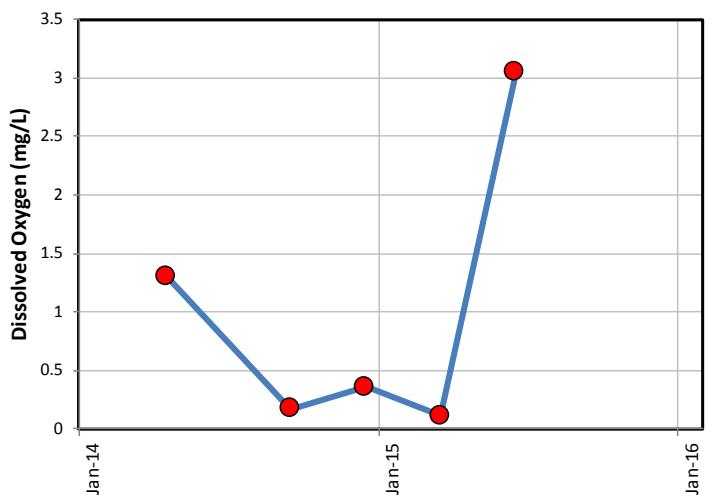
DO in MW-608D



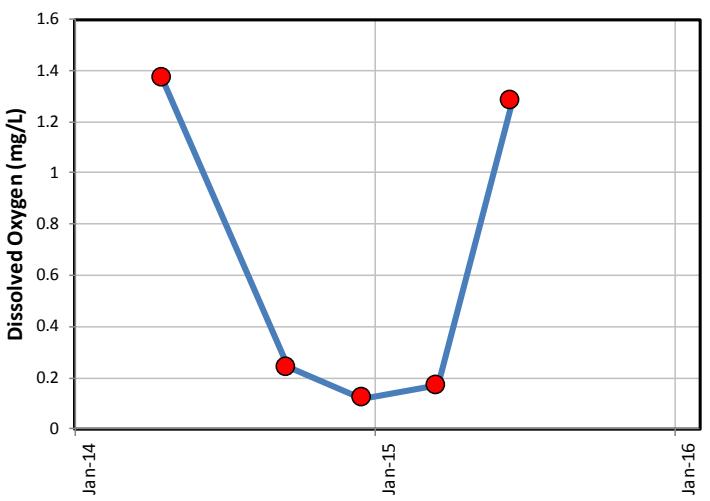
DO in MW-608S



DO in MW-609D



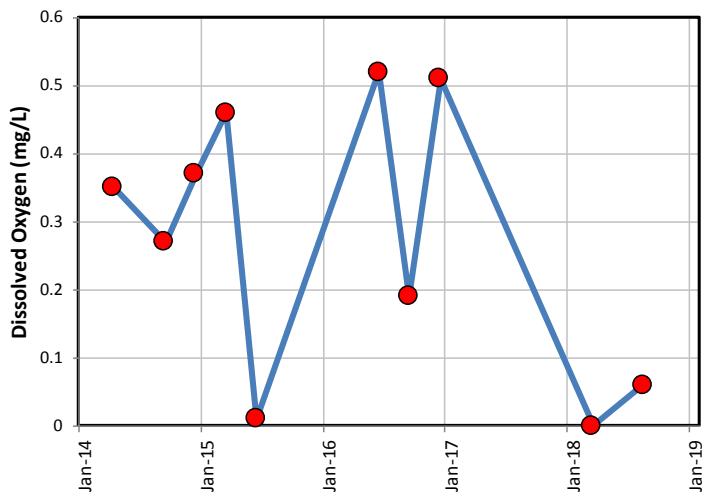
DO in MW-609S



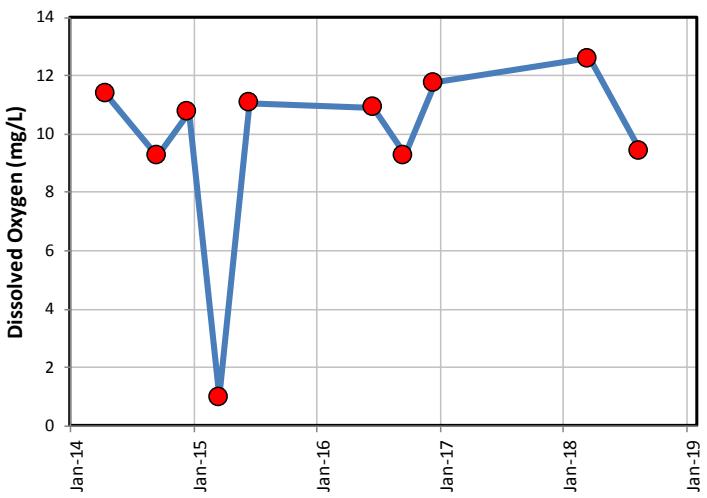
DO = dissolved oxygen in milligram per liter (mg/L)

DO Trends –Performance and Site Wide Monitoring Wells (2014-2018)

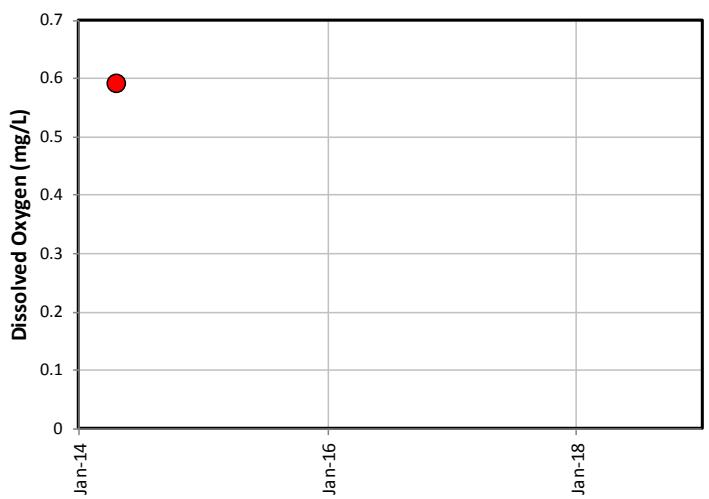
DO in MW-610D



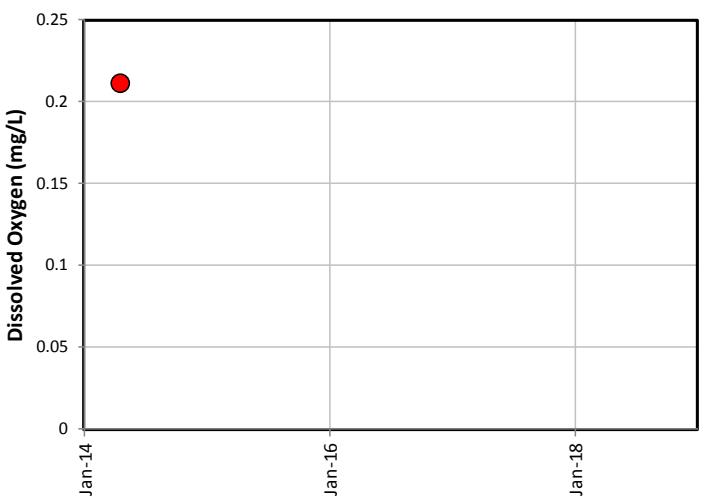
DO in MW-610S



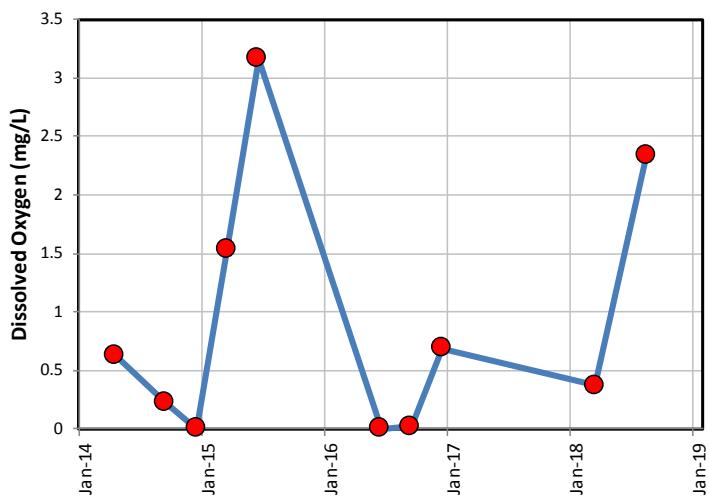
DO in MW-611D



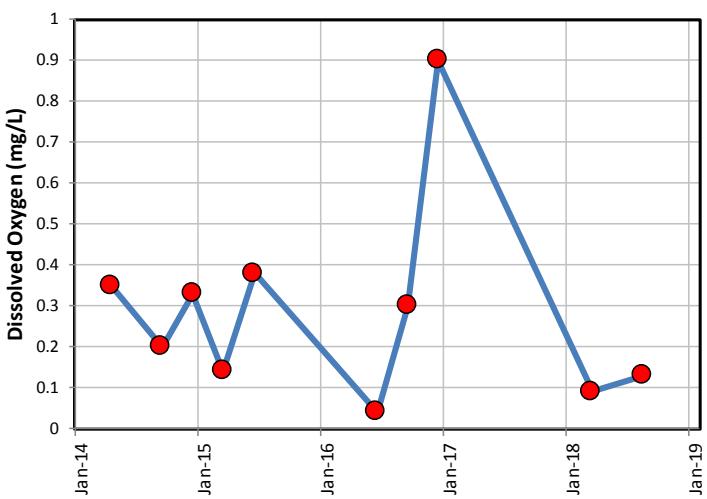
DO in MW-611S



DO in MW-612D



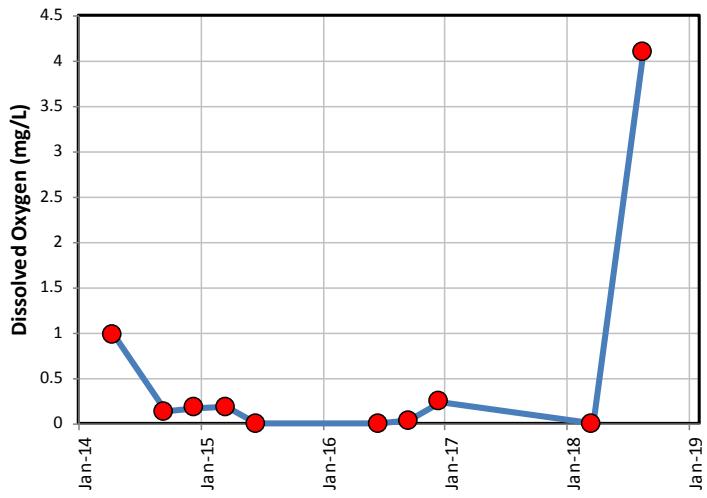
DO in MW-612S



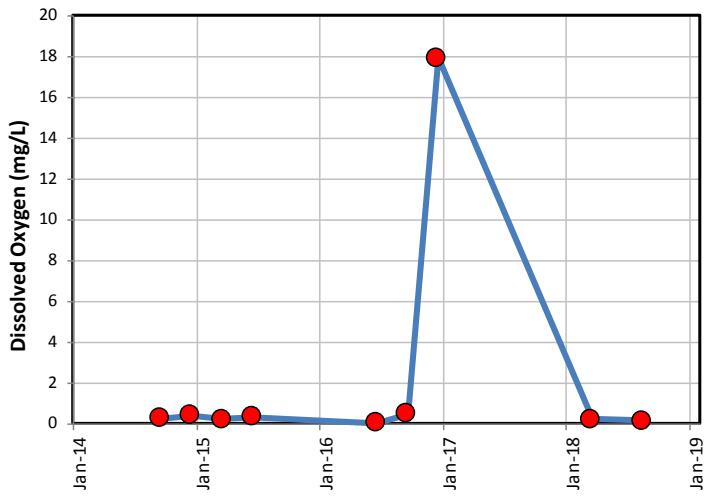
DO = dissolved oxygen in milligram per liter (mg/L)

DO Trends –Performance and Site Wide Monitoring Wells (2014-2018)

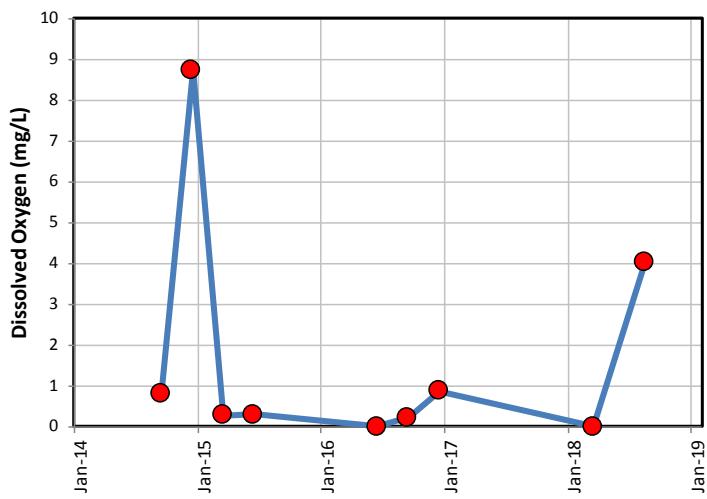
DO in MW-613D



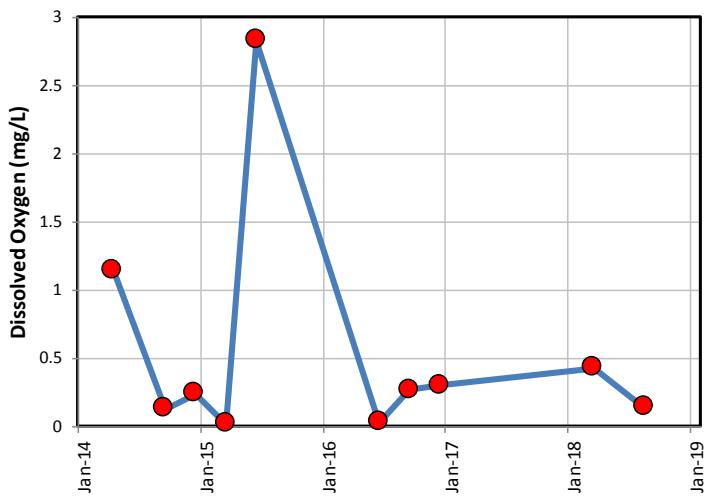
DO in MW-613S



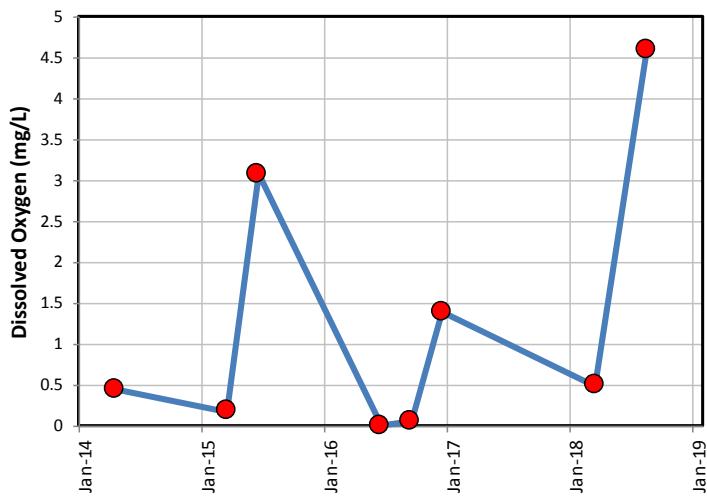
DO in MW-614D



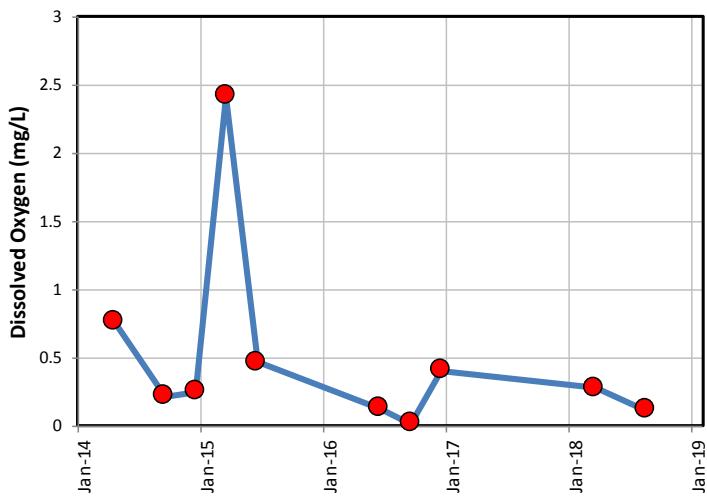
DO in MW-614S



DO in MW-615D



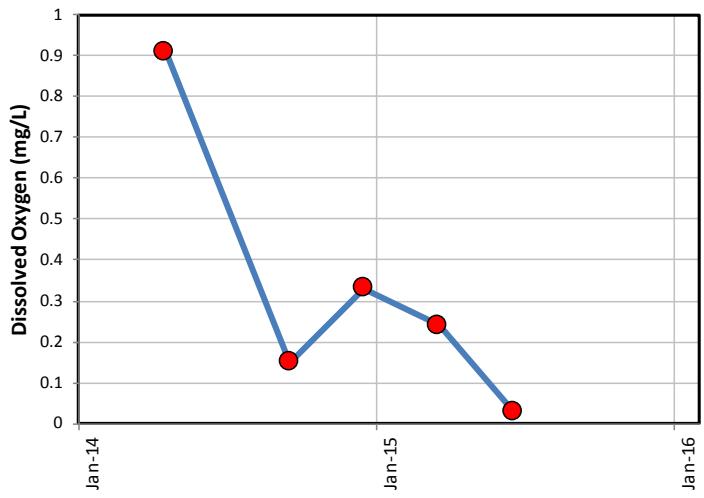
DO in MW-615S



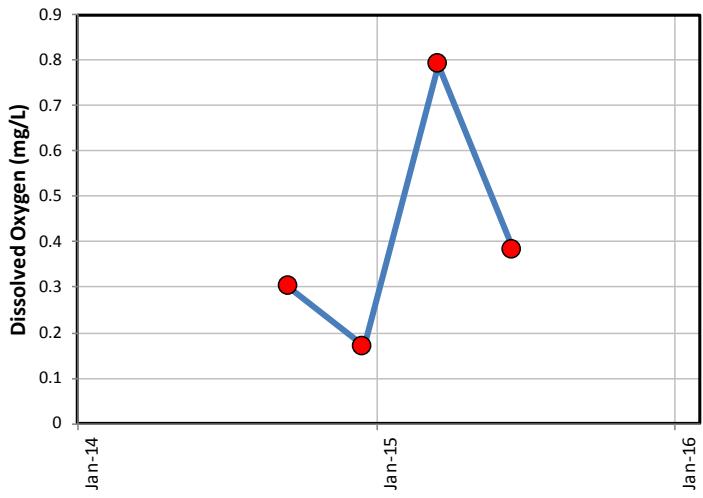
DO = dissolved oxygen in milligram per liter (mg/L)

DO Trends –Performance and Site Wide Monitoring Wells (2014-2018)

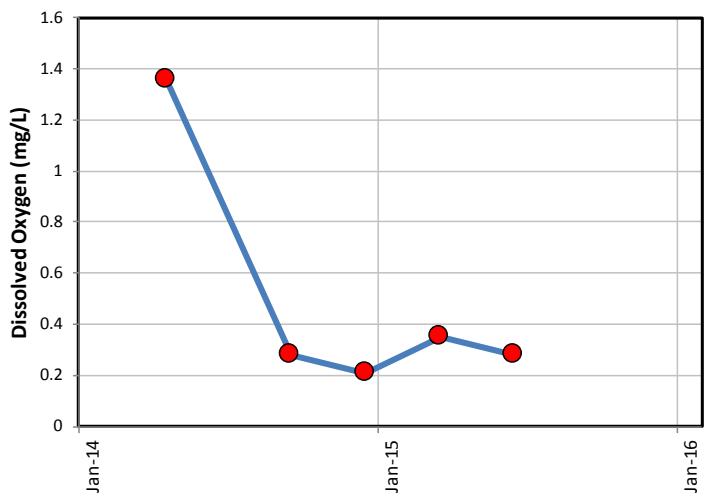
DO in MW-616D



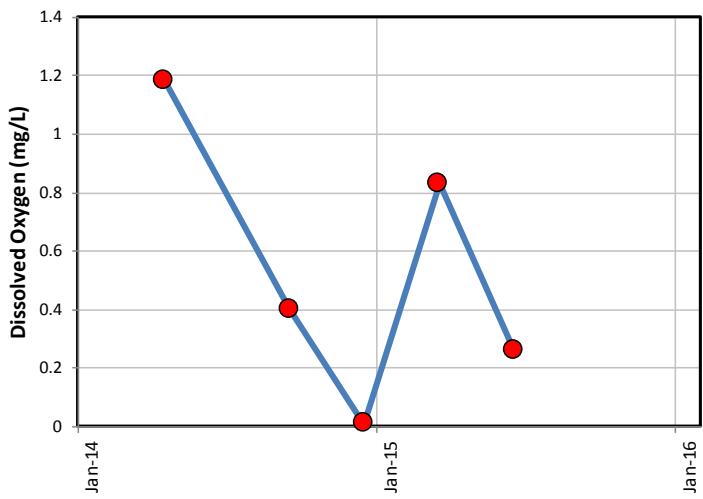
DO in MW-616S



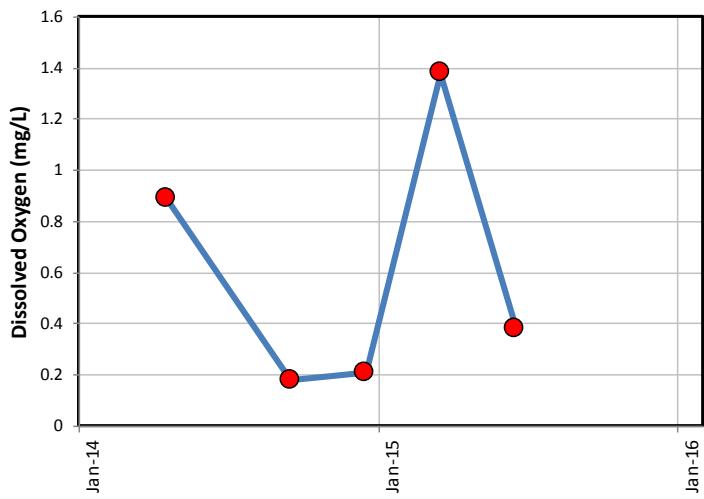
DO in MW-617D



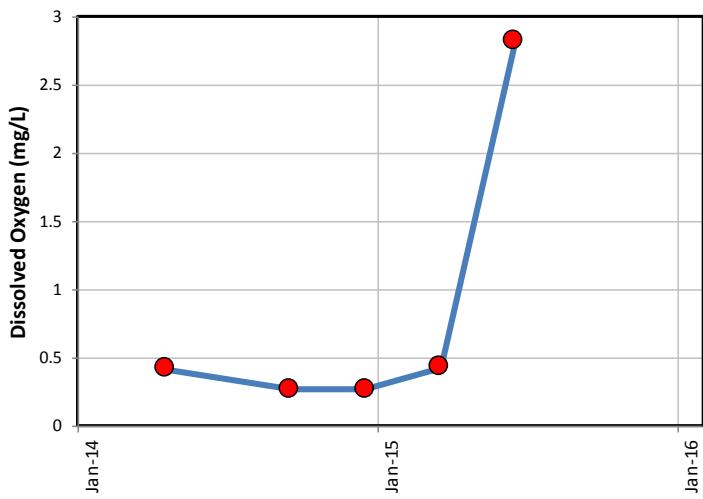
DO in MW-617S



DO in MW-618D



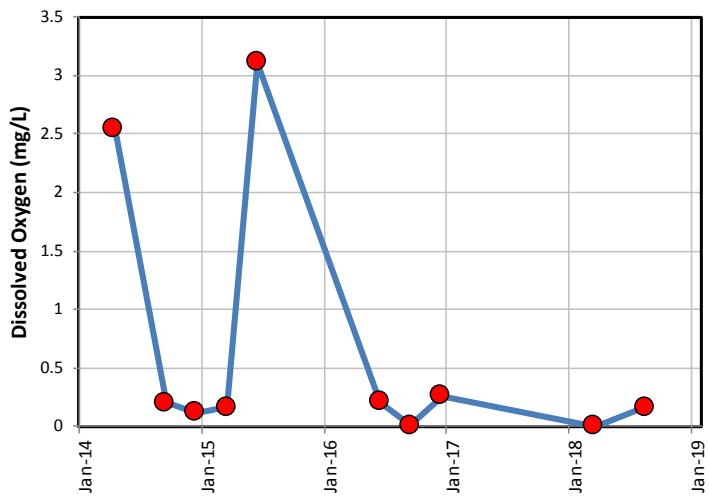
DO in MW-618S



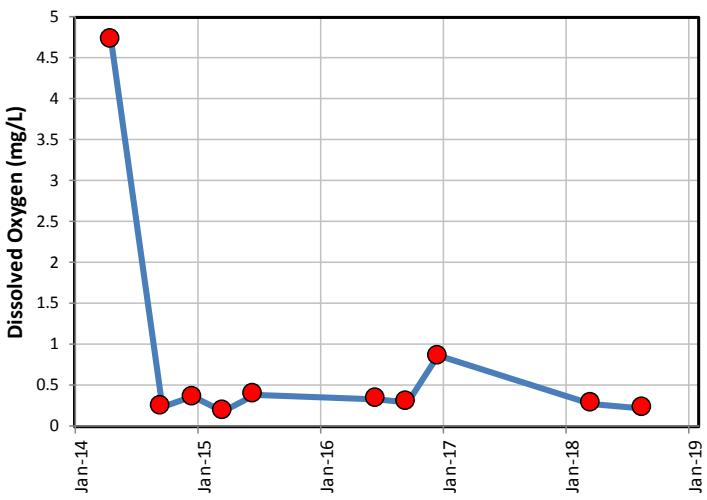
DO = dissolved oxygen in milligram per liter (mg/L)

DO Trends –Performance and Site Wide Monitoring Wells (2014-2018)

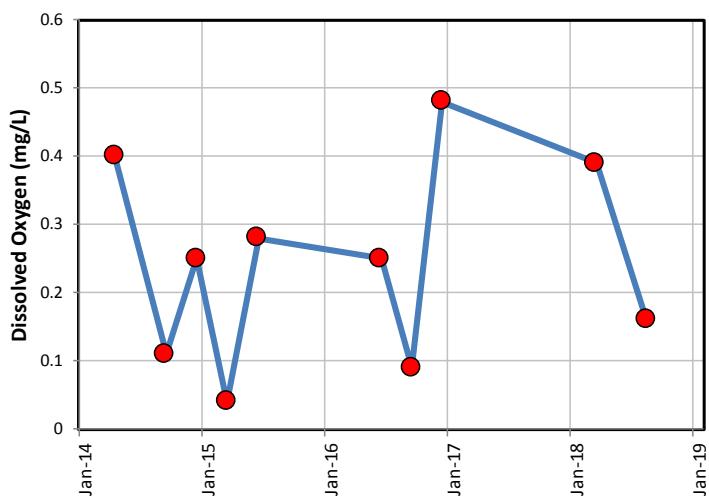
DO in MW-619D



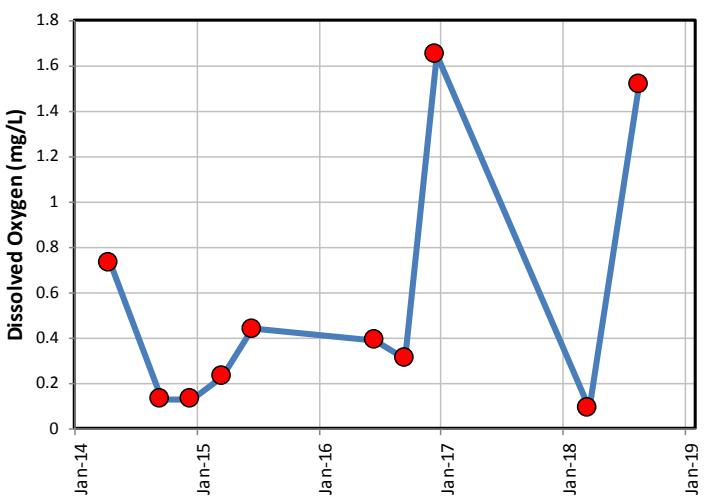
DO in MW-619S



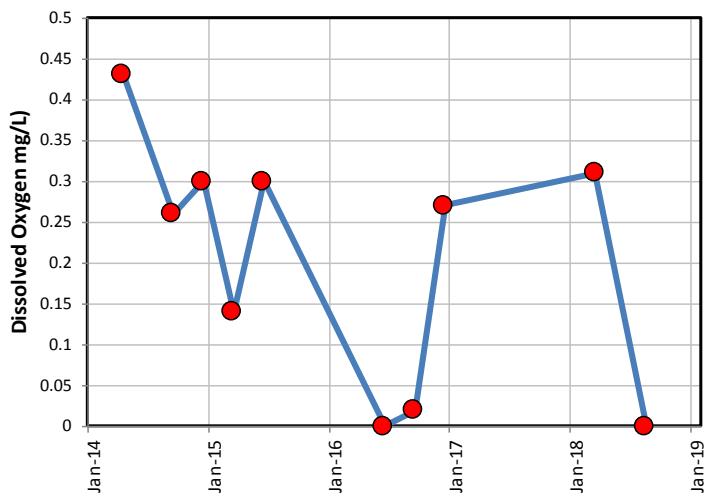
DO in MW-620D



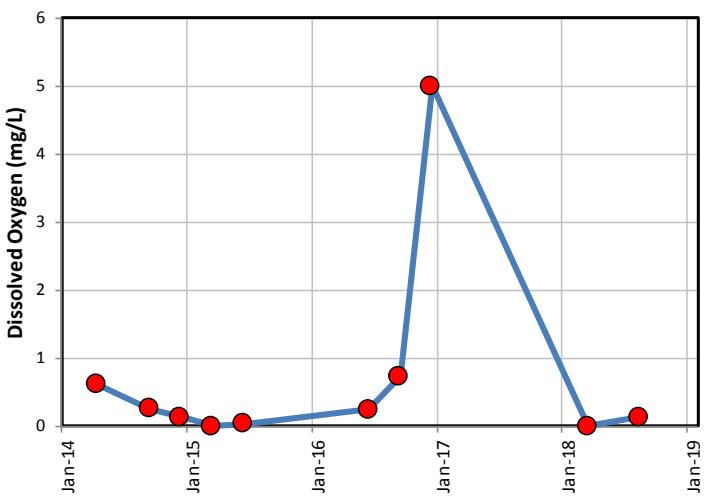
DO in MW-620S



DO in MW-621D



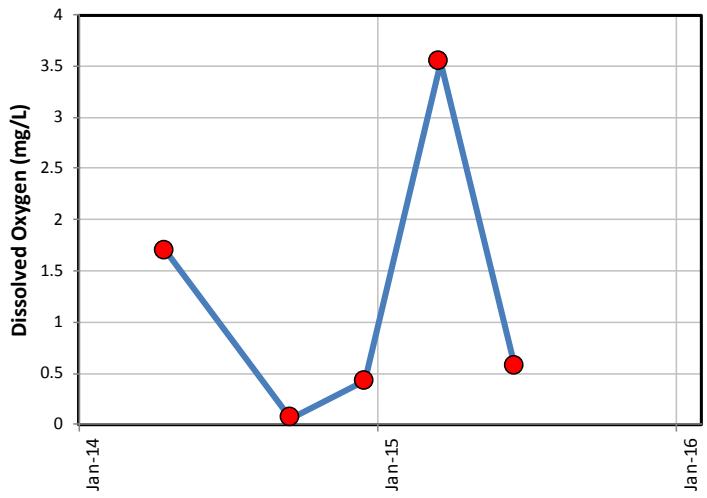
DO in MW-621S



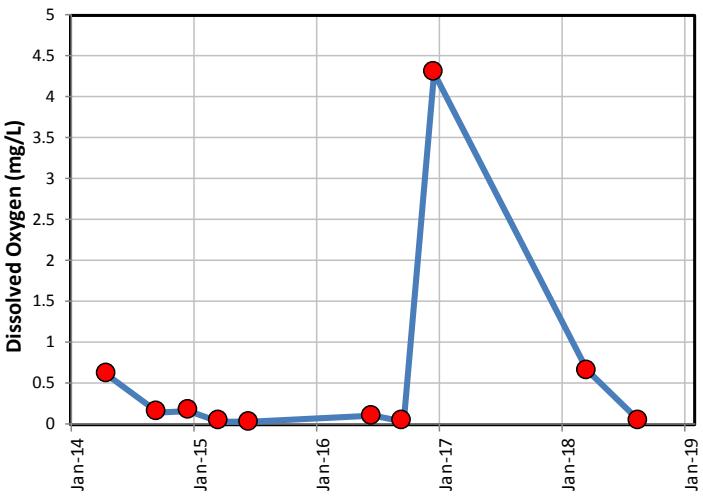
DO = dissolved oxygen in milligram per liter (mg/L)

DO Trends –Performance and Site Wide Monitoring Wells (2014-2018)

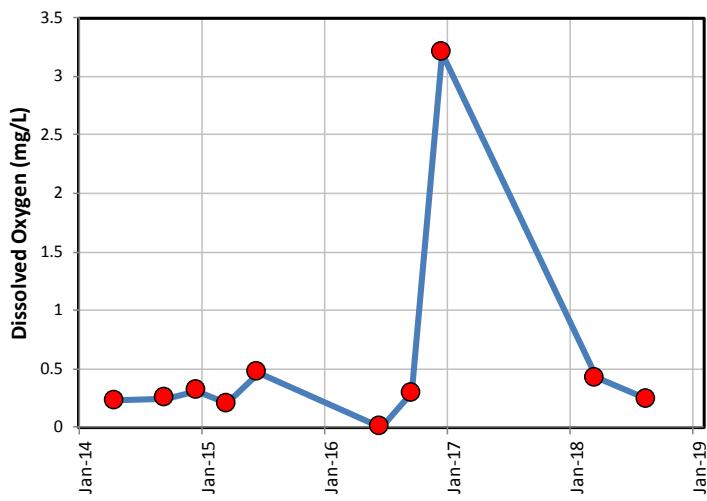
DO in MW-622S



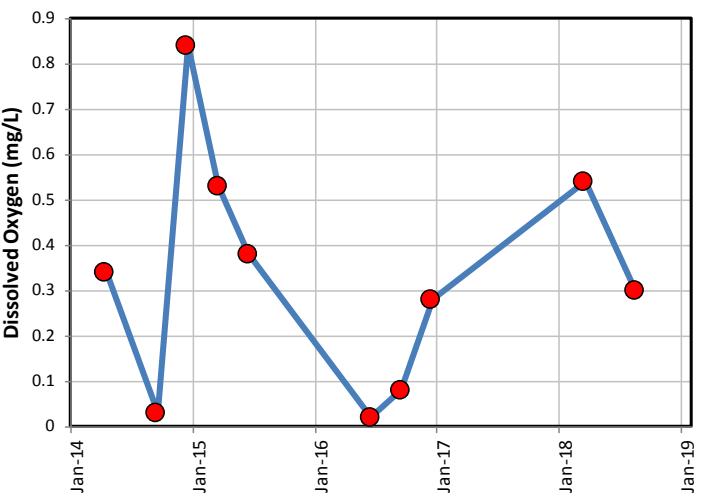
DO in MW-623D



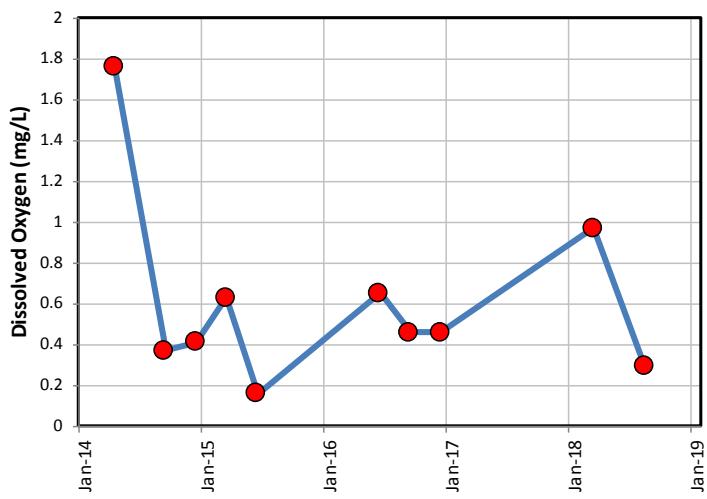
DO in MW-623S



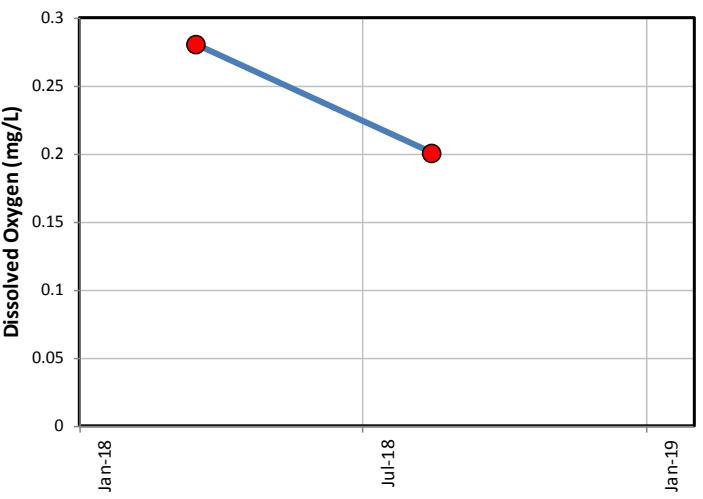
DO in MW-624D



DO in MW-624S



DO in MW-625D



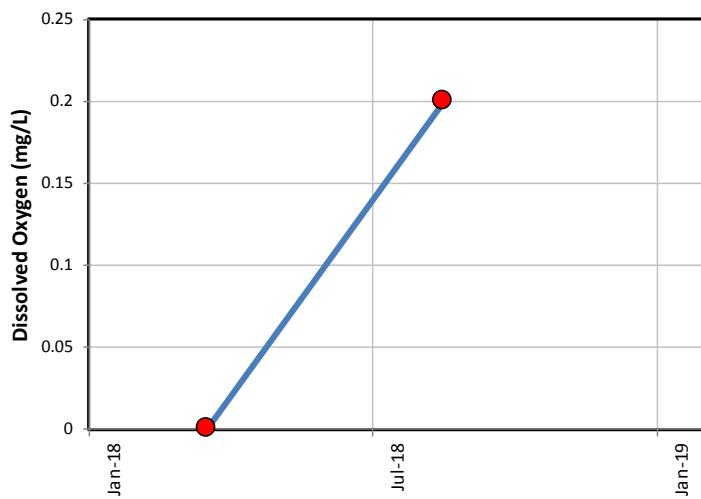
DO = dissolved oxygen in milligram per liter (mg/L)

DO Trends –Performance and Site Wide Monitoring Wells (2014-2018)

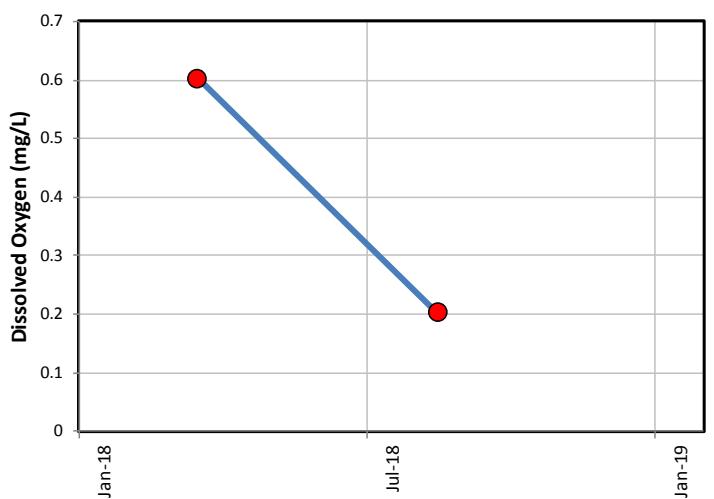
DO in MW-625S



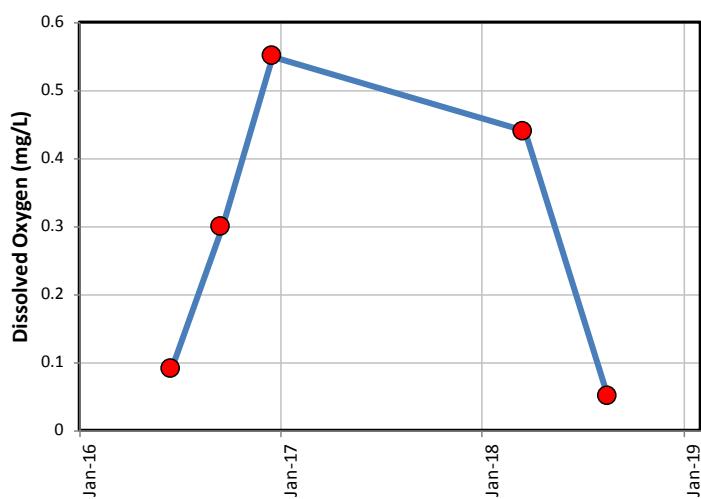
DO in MW-626D



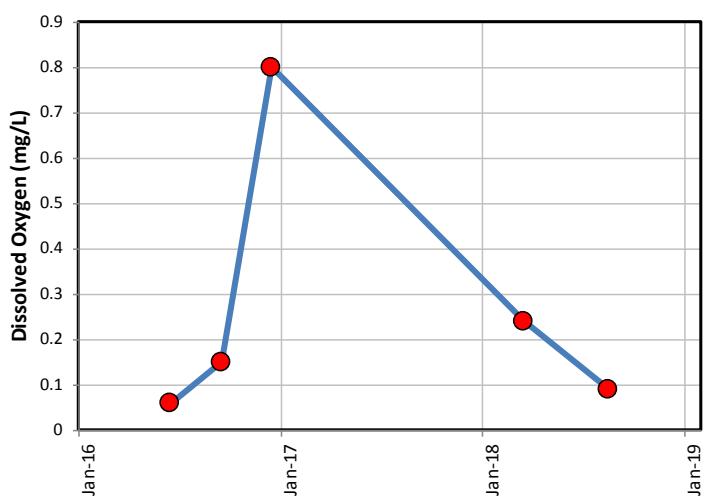
DO in MW-626S



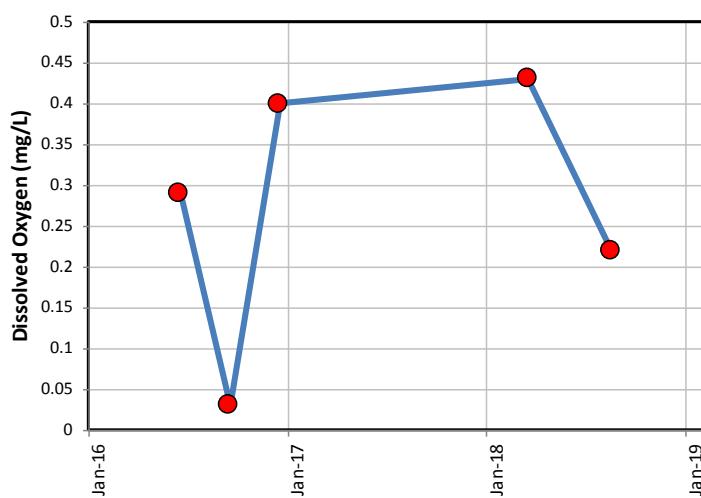
DO in ST-MW-1D



DO in ST-MW-1S



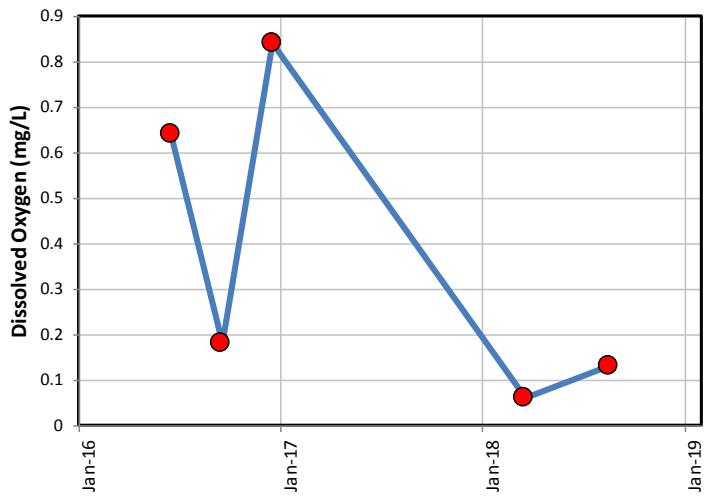
DO in ST-MW-2D



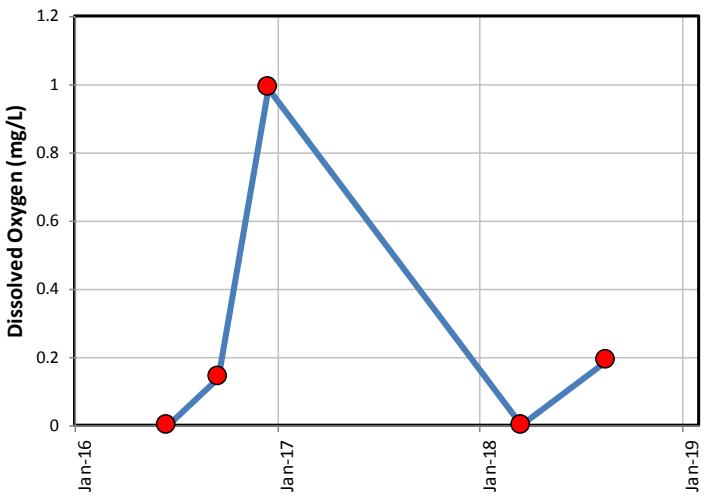
DO = dissolved oxygen in milligram per liter (mg/L)

DO Trends –Performance and Site Wide Monitoring Wells (2014-2018)

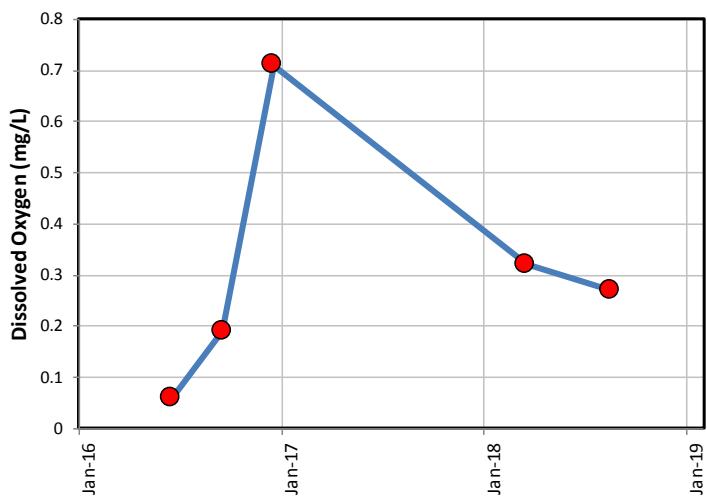
DO in ST-MW-2S



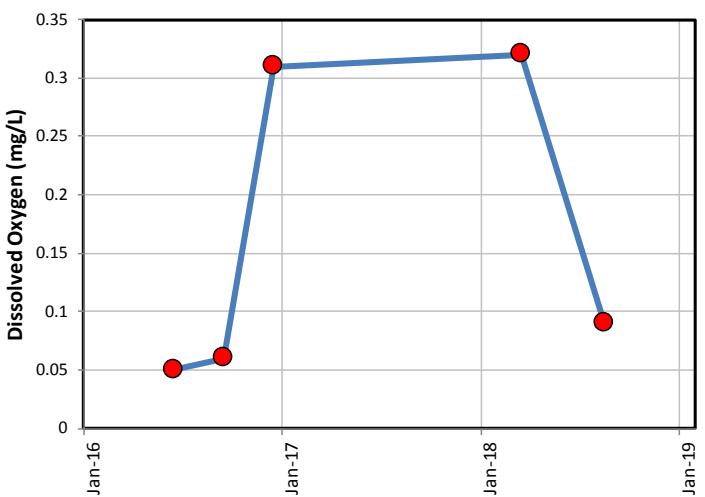
DO in ST-MW-3D



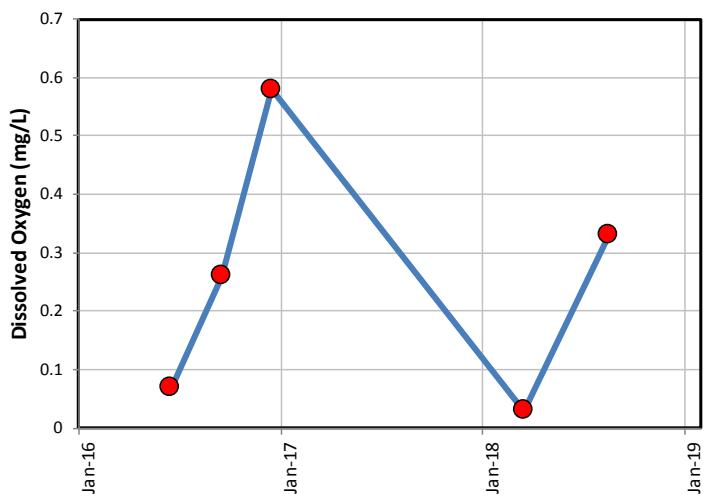
DO in ST-MW-3S



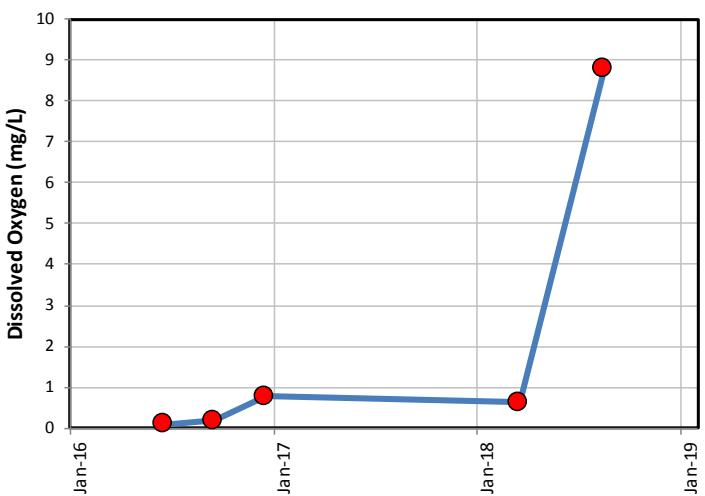
DO in ST-MW-4D



DO in ST-MW-4S



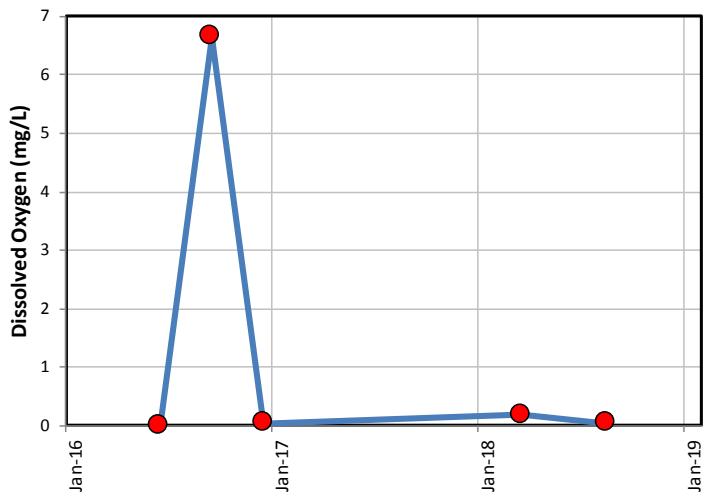
DO in ST-MW-5D



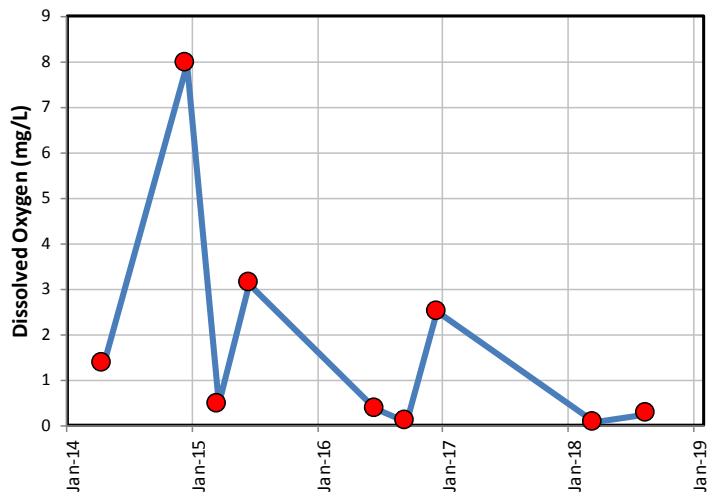
DO = dissolved oxygen in milligram per liter (mg/L)

DO Trends –Performance and Site Wide Monitoring Wells (2014-2018)

DO in ST-MW-5S



DO in W-5



DO = dissolved oxygen in milligram per liter (mg/L)